VOL. 160 — NO. 18

MAY 6, 1961

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

Satellite exchange building of Southeastern Telephone Co. at Tallahassee, Fla. Designed to serve a residential area, the building blends in with the houses located in the Northwest section of the city. This office was first satellite in Tallahassee, established with conversion to ANC of entire exchange area.

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GENERAL DYNAMICS | ELECTRONICS

FLASHES AND PLUGS

PECK OF TELEPHONE TROUBLE. Spring is the time when a young man's fancy lightly turns to thoughts of love, and officials in Massena, N. Y. are hoping that the same applies to turkeys and that this may lure a belligerent gobbler away from his telephone. Plans call for inporting a lady wild turkey to Barnhart Island State Park and to turn her loose near an aluminum telephone booth occupied by "Tom the Telephone Turkey."

It is hoped the distaff turkey will entice Tom out of the booth, so people will be able to use the telephone once in a while. Presently he doesn't let them.

The dark-brown bird was among five wild turkeys turned loose in the park last fall. He promptly picked the telephone booth near the beach building for his home.

Wild turkeys are supposed to live in the woods and run when disturbed by human beings.

This one doesn't run. The 15-pound, 3-foot-tall gobbler squawks fiercely and rushes at all potential callers.

Park Superintendent Charles Mitchell hopes that the arrival of summer crowds will frighten the bird back to the woods.

One reporter risked the turkey's wrath by slipping into the telephone booth to obtain the number.

The turkey discovered the intruder and chased her out of the area.

The turkey's telephone number is ROckwell 9-9843.

•

PHONETIC FILE. We've heard of old-time operators who were able to pick out the George Smith wanted on the line out of the six George Smiths in town, either by the caller's voice or a few details provided, such as the color of his dog, but from San Francisco comes the story of operators who could connect the right parties simply by the caller's accent.

At the Chinese Telephone Exchange, founded in 1887, the young Chinese girl operators, before the days of dial, memorized the names and telephone numbers of each of the 2,500 subscribers. Out of eight different Sam Wongs, the operator could find the right Sam Wong, just by listening to the caller's accent.

•

BLAZIN' AND AMAZIN'! At Celina, O., Edwin Beougher recently passed his civil service examination for the fire department.

On a Sunday afternoon, he drove over to the department to go to work. Another fireman, Berl Baucher, was on the telephone as he entered.

"We just got a call from your wife that your house is on fire," said Baucher. "Want to ride along?"

Did he! He rode along, and helped to put out his own $7,000 blaze.

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Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

1901 — 60 years — 1961

May 6, 1961

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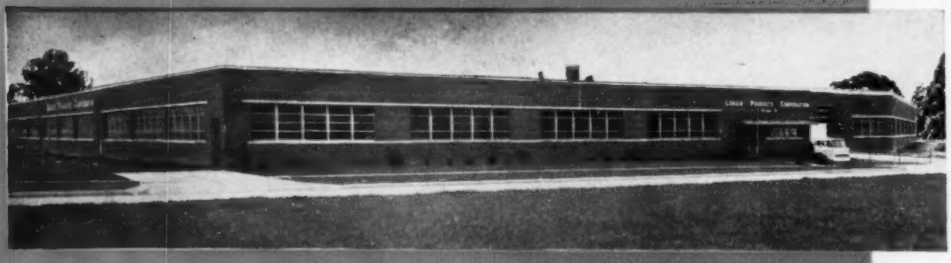

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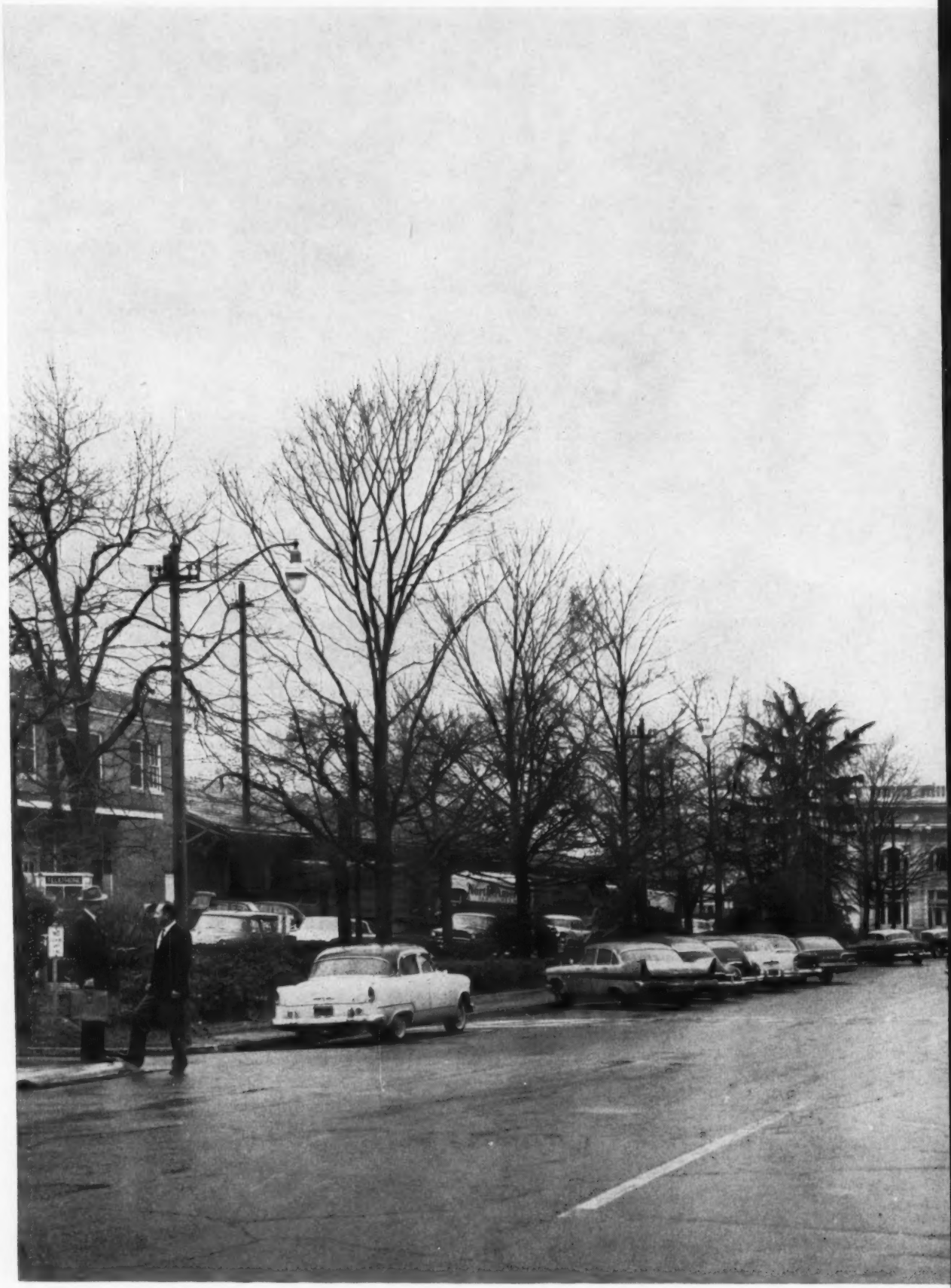

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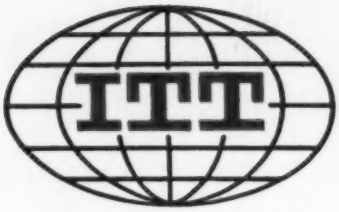

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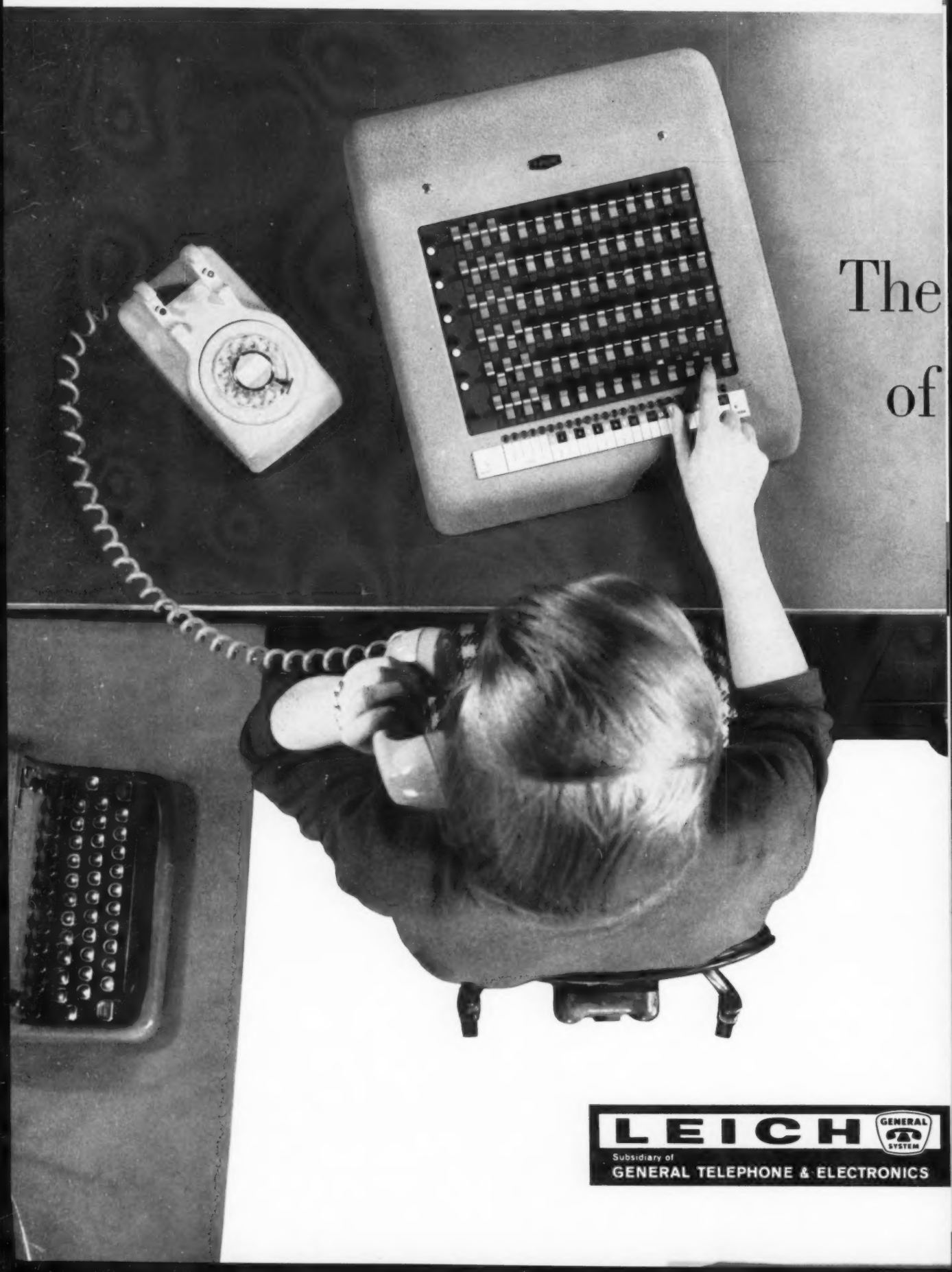

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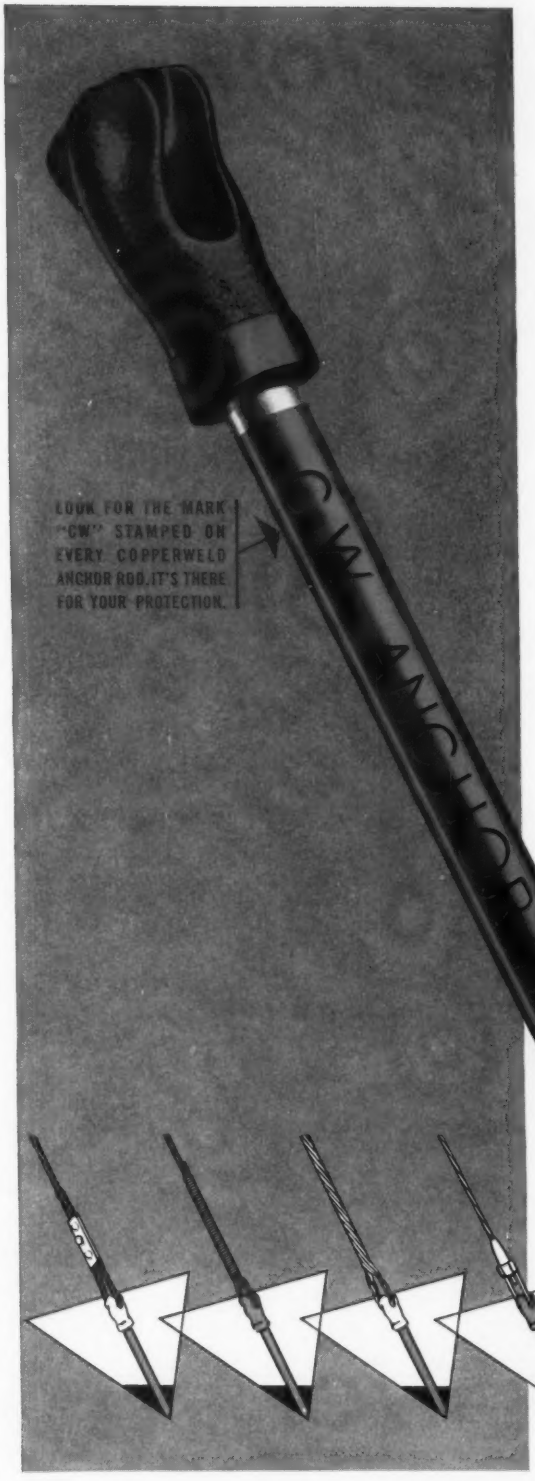

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NOW IN SUCCESSFUL USE THROUGHOUT THE WORLD FOR AUTOMATED DIRECTORY PRINTING

One of the largest complete directory companies, serving the independent telephone industry, set off a chain reaction by its outstanding success in producing directories on a regular basis with the FotoList System. The finished directory by this new system is neater, cleaner and more legible than 'hot-metal' printing. Cost-wise, the FotoList System's directory production is an eye-opener. In speed, the System is setting new records for getting to press. Accuracy? Unexcelled. Since the system is photographic in nature, error-proof reproduction of original, correct data on the cards is assured. Some proofreading steps are eliminated, others shortened. At publication time the cards are automatically organized into proper galley and page order, then fed to the FotoList camera. There the information on the cards is reproduced at very high speed and accuracy, on the film from which printing plates (either offset or letterpress) are made. Cards are then returned to file for continued updating. One small file cabinet can easily hold the cards for a city of 50,000 subscribers, the equivalent of tons of type metal.

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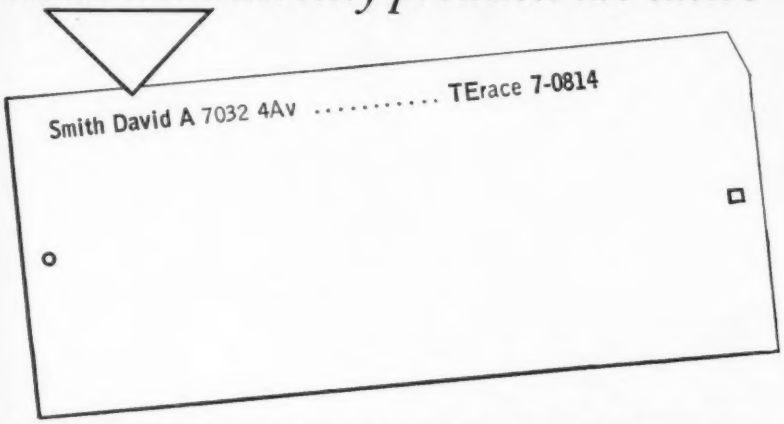

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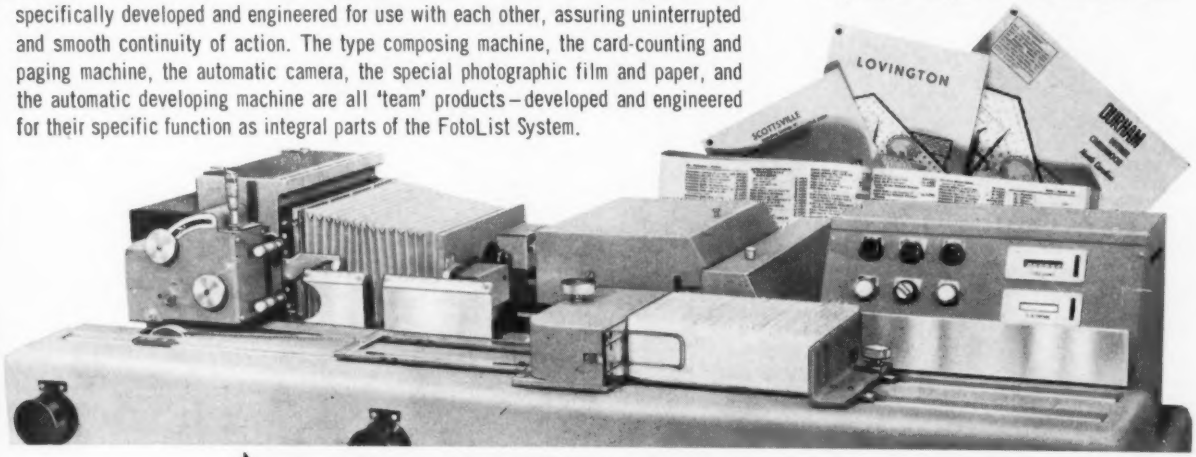
ECONOMICAL FOR ANY SIZE TELEPHONE DIRECTORY

The FotoList System's versatility is outstanding, not only as to production factors but as to application-size. Significantly, neither the size of the telephone company nor the directory itself in any way alters the basic advantages available with the System. Both large and small companies are enjoying the benefits of the System's economies, improved traffic record service, etc.



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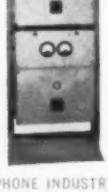

FIRST IN TRANSISTOR PRODUCTS FOR THE TELEPHONE INDUSTRY

Government Spending and the Excise Taxes

TELEPHONE COMPANIES and their subscribers should again take up a job which they have been trying to get done for years—the repeal of the burdensome and discriminatory excise tax on local and long distance telephone service.

Congress has recognized the unfairness of this tax. Last year it voted to rescind the levy on local service, but cancelled the vote when President Eisenhower and his budget-makers requested continuation of the tax to help meet their increased 1960-61 budget. As a result, telephone subscribers are still paying the war-time emergency tax—nearly 16 years after the end of the war.

President Kennedy in his recent tax proposals to Congress, also requested that the telephone excise tax be continued beyond its June 30, 1961 expiration date.

Recently, we urged telephone companies, their personnel and customers, and other interested parties—unions, state commissions, REA, and local civic organizations—to again put pressure on their congressmen and senators to repeal the telephone tax and then to keep their commitment — regardless of any demand for its continuance from the executive branch. We again recommended that action.

There is one way—and a sound economic one—that Congress can eliminate the telephone tax and not adversely affect the financial requirements of the government. It can cut out the "fat," or unnecessary and wasteful spending, that is bound to creep into the federal budgets. Congress also can reduce government spending by cutting out any unnecessary "pork barrel" projects which are designed and proposed for vote-getting and political purposes.

We Americans have been told that to help our country in the present "hour of national peril and national opportunity," we will have to make sacrifices; that we should think of what we can do for the government instead of what it can do for us; that, in essence, we will have to tighten our belts.

Washington doesn't have to worry about the American people meeting any real challenge. In any emergency they can be counted upon to rise to the occasion, just as they have in the past. But we have a strong suspicion that they are going to insist that the government do likewise, as far as eliminating unnecessary and wasteful governmental spending is concerned. The government has the responsibility to set the example in any austerity program. It cannot continue to pile needless bureau upon needless bureau, unnecessary project upon unnecessary project, unproven theory upon unproven theory, and expect the people to take to heart any cry of danger or doom.

We are sure the people are going to insist that Congress put the brakes on the growing and spending extravagance of the federal bureaucratic giant. It can do so by, first, insisting upon the abolition of any useless and unproductive bureaus, and then giving the remaining ones less money to spend, thereby forcing them to cut a lot of the "fat" out of their budgets, and secondly, by eliminating any existing waste and duplication in two high spending areas — the military services and the foreign aid program.

The savings thus effected should not only give the government more money to spend on vital and legitimate functions, but should make it possible to lighten the heavy tax burden carried by the American people, including the elimination of the discriminatory telephone excise and other unfair taxes.

We are sure that the American people are becoming aware of one thing—that no magic wand, or high-sounding slogans of a New Deal, Fair Deal, Right Deal, New Frontier, or any other kind of deal, can necessarily guarantee government financial solvency. And we feel positive that there is a growing realization that it can be brought about only by Congress, which has control of the government's purse strings, seeing to it that the government lives within its means, instead of by deficit financing, which has been the case 26 of the last 32 fiscal years.

IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH, WASHINGTON EDITOR
AND EDITOR, PUBLIC UTILITIES FORTNIGHTLY

President submits specific recommendations for reorganizing FCC and SEC. . . . Congress has 60 days to disapprove. Kennedy also requests creation of new cabinet office — Department of Urban Affairs. . . . Possibility that, once established, new department might concern itself with utility rate cases.

FOLLOWING up his earlier messages on reforming the regulatory commissions — especially the Federal Power Commission (see this department, issue of Apr. 22) and proposals to eliminate conflicts of interest in government service—President Kennedy has submitted his specific recommendations for reorganizing the Federal Communications Commission. This came on Apr. 27 in a message which also covered the President's plans for improving the operation of the Securities and Exchange Commission.

It is not necessary for Congress to pass either one of these plans. Under the new Reorganization Law, both plans will go into effect (for the FCC and the SEC) in 60 days unless a majority of either house of Congress votes to *disapprove!* As to that, there seems little likelihood that Congress will throw any monkey wrenches. Certain influential members of Congress have been approached by Washington reporters and observers, and it would appear that there is no substantial opposition.

So, that brings up for immediate consideration just what changes the President will make in the organization of the FCC. How will they affect regulated telephone companies which are under the Federal Communications Act? Speaking now only of the FCC plan and not of the SEC plan (which is very similiar), Kennedy's changes, in general, are designed to speed up the work of the commission by delegating authority at lower levels of the commission's operation.

First of all, the FCC will be authorized to delegate decision making at three lower levels: (1) To hearing examiners, as at present; (2) to panels of two or three commissioners; and (3) even to individual employes or employe boards. Obviously, the second and third delegations would be something new. True, back in 1934 the original FCC was authorized to divide its work into panels and that plan was later abandoned.

But there is a difference between the panel-type arrangement in 1934 and what President Kennedy now seeks to do. Under the 1934 setup, which sought to divide the work of the commission along industrial lines—with one panel for telephone cases, another for telegraph cases, and another for radio cases—the right of appeal to the full commission was almost automatic. As a result, any advantages in delegating the work to the panels were short-circuited or worse. It meant that the same case had to be heard twice or even three times, in the case of original proceedings before an examiner.

There will be none of that under President Kennedy's setup. All decisions as to delegating authority will be made by FCC Chairman Newton N. Minow, who will take over from the full commission the "assignment of panels, including commissioners." That means that the chairman, in the first instance, will decide which of these cases before the FCC can be disposed of by a panel or two or three commissioners, and which can be handled and disposed of by hearing examiners, and which can be handled and disposed of by staff employes.

Most important of all, the automatic right of review which virtually destroyed the old 1934 panel system will not be allowed. But President Kennedy is careful to preserve the right of the full seven-member FCC to review lower level decisions or to *refuse* to review them. He does seek to safeguard parties having business before the FCC from any arbitrary action by an examiner or a panel or a staff employe assigned to handle the case. This means that a dissatisfied party can ask for a review, just as anybody can ask the U. S. Supreme Court for a review. But only a very small percentage of petitions filed with the U. S. Supreme Court are ever heard. They are usually thrown out on the basis of the papers filed without the lawyers even coming to Washington.

In somewhat similar fashion, parties wishing to appeal lower level decisions to the full FCC will get a fast answer one way or the other. But they will not be automatically entitled to try their case on appeal.

Right of Review Protected

Bearing in mind that the chairman of the FCC, who will be given pretty concentrated powers of assignment, will be a member of his own party, President Kennedy shows a sensitiveness towards minority rights in providing that the full commission, rather than the chairman, will decide whether it wants to review a decision. Further-

more, bearing in mind that three members of the FCC will be Republicans or at least not members of the chairman's political party, President Kennedy said that the verdict to review a decision should be by "a majority of less than one member." Thus, if any three members of the FCC feel that a lower level decision should be reviewed, the full commission will have to take it up.

The President's plan also calls for a review by the commission on its own "initiative" rather than waiting for some dissatisfied party to appeal a lower level decision. This is another safeguard which the White House has interposed against arbitrary action on decisions at the lower levels, even though no interested party sees fit to ask for a review.

All final decisions, whether at the lower level or at the full commission level would still be subject to appeal to the United States Circuit Court for the District of Columbia under the present provisions of the Federal Communications Act. This part of the picture—with reference to appealing to the courts—remains unchanged under the reorganization.

The reader may wonder just what kind of a classification could be made for sorting cases into categories of relative importance so that some would go to examiners, some to panels of commissioners, and some to be handled by staff employes. That will be the job of the FCC chairman.

Lower Level Decisions

It has been apparent for many years that a good many fairly routine matters, such as the enforcement of safety regulations or engineering standards, could just as well, if not better, be handled by staff experts than by full-dress proceedings before examiners or commissioners. In this way, a great deal of relatively unimportant controversy—such as a complaint by one radio station against another with respect to technical interference or amateur radio operators violating technical operations — could be handled at the staff level.

Telephone companies should have their business expedited under this new arrangement for the simple reason that, in the past, the commission itself was bogged down with too much routine and detail by a vast avalanche of complicated radio and television cases. Telephone cases, although fewer in number, but relatively more important, had to compete for the commission's time and attention with such radio and television matters.

As for the division of the commission into panels, it is likely that Chairman Minow will decide on a "telephone panel." Nothing definite is known about this as yet, because the reorganization plan will have to lie before Congress for 60 days before the chairman is authorized to take any steps at all. But after that, we can expect that panel organization along industrial lines — meaning telephone as distinguished from radio and television and other duties of the commission—will be developed. It is too early to even speculate on what members of the FCC are likely to get the call for duty on the telephone panel if there is to be a special telephone panel. We will probably be hearing more about this two months hence.

Somewhat along the same lines, Senator John A. Carroll, Democrat of Colorado, planned to introduce a bill designed to speed action by government regulatory agencies. The measure was one of a series Carroll will sponsor which would carry out recent recommendations of his Judiciary Subcommittee on Administrative Procedures.

Under Carroll's bill, decisions of hearing examiners would stand unless they were reviewed and overturned on one of four specified counts. A commission or board chairman could decide that a hearing examiner's decision should be reviewed on the ground that it was clearly erroneous or involved a procedural area. Other grounds for review would be that a major policy question was involved or that the examiner reached an important decision without precedent or contrary to precedent. Carroll said the bill would trim the backlog of undecided cases before boards and commissions.

Conflict of Interest

In an allied proposal on Apr. 27, President Kennedy asked Congress to stiffen laws against improper use of federal posts for private gains. In a special message on conflicts of interest, the President proposed the outlawing of private approaches to federal regulatory agencies in cases which must be decided by formal hearings. The executive branch would like to see this restriction apply even to members of Congress. However, this particular proposal will probably meet with a stiff fight since the members of the Congress have traditionally maintained that they have the right to talk to the regulatory agencies regarding the problems of their constituents.

A bill being drafted by the administration would carry a possible fine of

(Continued on page 56)

Recent Quotations of Telephone Stock

	4/28/61 BID	4/28/61 ASKED	3/30/61 BID	3/30/61 ASKED	Current Individual Dividend Rate
Anglo-Canadian Tel. Co.	51½	53½	46½	48½	$1.20
British Columbia Tel. Co.	47½	49	46	47½	2.20
California Interstate Tel. Co.	17¾	18¾	17¾	18¾	.70
California Pacific Utilities Co.	25	27	25¼	27	.90
California Water & Tel. Co.	38¼	39¼	32¾	33¾	1.36
Carolina Tel. & Tel. Co.	45	47	44½	46½	1.60
Central Tel. Co.	32	34	29½	31	.88+Stk.
Chenango & Unadilla Tel. Corp.	27 Bid		26½ Bid		1.35
Cincinnati & Subn. Bell Tel. Co.	109½	112½	110	113	4.50
Citizens Utility Co. "A"	21½	23	25½	27	Stock Div.
Citizens Utility Co. "B"	19	20¼	22	23½	.60
Commonwealth Tel. Co.	25½	27	26	27½	1.00
Florida Tel. Corp. Class A.	29½	31	30	31¼	1.00
General Tel. & Elec. Corp. Common	28⅝	Last Sale	29	Last Sale	.76
*Hawaiian Tel. Co.	17⅜	18⅜	34½	35¼	.54
Indiana Tel. Corp.	30 Bid		26 Bid		—
Inter-County Tel. & Tel. Co.	29½	31	28	30	.72+Stk.
Inter-Mountain Tel. Co.	17¾	19¼	17½	19	.80
Jamestown Tel. Corp.	90 Bid		90 Bid		6.00
Lincoln Tel. & Tel. Co.	65 Bid		65 Bid		2.60
Lorain Tel. Corp.	35 Bid		33½ Bid		1.40
Middle States Tel. Co. of Ill.	34½	36½	32½	34½	.92+Stk.
North Carolina Tel. Co.	1¾	2¼	1⅜	1⅞	—
Northern Ohio Tel. Co.	64	67	64	67	2.00
Peoples Tel. Co.	105 Bid		105 Bid		4.00
Pioneer Tel. Co.	36 Bid		36 Bid		1.00+Stk.
Rochester Tel. Co.	28⅞	Last Sale	26½	Last Sale	1.00
Southeastern Tel. Co.	28½	30½	28	30	1.00
Southern Nevada Tel. Co.	43½	46½	42	44	1.20
Southern New England Tel. Co.	53½	55	51¼	53¼	2.20
Southwestern States Tel. Co.	31¾	32¾	32	33¼	1.28
Tel. Service Co. of Ohio Class A.	33	35	34½	36½	.36+Stk.
Tidewater Tel. Co.	27 Bid		27 Bid		1.40
*United Utilities, Inc.	27½	29	51½	53	.80
West Coast Tel. Co.	35½	37	33	34	1.28
Western Carolina Tel. Co.	9½	10¾	9¼	10¼	.43
*Western Light & Tel. Co., Inc.	29½	31	61½	64½	1.20
Western Utility Corp.	13½	14½	11½	12½	.36

*After two for one split.

Evaluating Future Telephone Growth

By E. C. TURNER*

(1) Basic Needs for Evaluation
(2) Basic Factors Involved
(3) Application of Basic Factors

THE TERM "Evaluation" is used in the title rather than "Forecast," i.e., prediction or prophecy, because the latter term appears to be too closely associated with the weather, the stock market, election predictions, etc. Furthermore, to try to anticipate the mental processes of millions of people is quite different from evaluating telephone growth. The latter is based upon the more solid factors, the number of people, their method of living and their desire for a necessity.

In selecting the term "evaluate," however, it appears by definition that two efforts are involved: (1) "To find the amount of"; (2) "to find the worth of." The first item—finding the amount of telephone growth—is the goal of this outline. The second item, is the very backbone of an economic study. With the ever-increasing types of telephone plant for relief and replacement, there is the ever-increasing need for economic studies and without dependable growth estimates, these studies are futile.

Before outlining the needs of, and the factors involved in, an evaluation of telephone growth, it may be of interest to consider the past and the estimated future trends of the important item of population. With the exception of 3 or 4 states, the population in all states (48) in the United States has been upward from 1900 to 1960, the slope of this trend being deflected somewhat during the 1930's and it is predicted that this won't happen again.

Of course, telephone planning engineers are not supposed to be experts in predicting population growth and size of families; they don't have to be. The government provides experts in this line; so expert, in fact, that one may be led to wonder why the Census is taken every decade. Well, there is a multitude of population characteristics that are obtainable, as well as data on total population. Insofar as total population is concerned, "let's take a look at the record." The Census Bureau provided, at the request of the Bureau of Public Roads, an estimate of the population of every state (48 then) for 1960, 1965 and 1970. The pamphlet covering this estimate was released on Aug. 9, 1957 (Referred to later under "Population"). A comparison of the estimate for 1960 with the actual 1960 Census count shows: (1) The individual estimates for each of 36 states varied by less than 5 per cent from respective actual state count; (2) the individual estimates for 15 states varied by less than 2 per cent from the actual count; (3) the estimates for only two states were off as much as around 10 per cent—Florida low and Nevada high.

With such data available, it would seem that a real effort could well be made by Independent telephone companies to get a real line on the value of future telephone growth. It is realized, of course, that the larger Independent companies have a group of engineers who evaluate future telephone growth. However, while it is hoped that the data herein will be of help to the smaller companies, possibly some of the statistics, etc., may also be of assistance to larger companies.

If a portion of a TV commercial might be borrowed as a sort of text for this article, it would be: Any planning for the extension of telephone plant that is not based upon the best future growth estimate obtainable *up front* hasn't got it.

The basic factors concerning telephone growth to be outlined in this article are as follows:

(1) The basic needs for dependable telephone growth estimates to determine proper budgets and the type and amount of replacement and relief telephone plant to be installed.

(2) The basic factors required to determine future telephone growth, their past and future trends, the latter to be determined by statistics and estimates of Census Bureau experts.

(3) The selection of a specific telephone operating territory which, in telephone development, will be comparable to medium size Independent companies. With this territory as a basis, the various computations required from the first step—population, to the final step—estimated future business and residence main stations—will be outlined in detail. The source of all data will be given.

(4) Tables of past and future population, households, and per cent of telephone usage will be included (in the accompanying Appendix), the purpose of this being to serve as an over-all guide to carry out the processes outlined under item (3) above for portions of the respective states.

Now, the above Items (1), (2) and (3) will be considered in some detail as follows:

ITEM (1) *Basic Needs for Dependable Growth Estimates.*

(a) Financing — As is well known there appears monthly in TELEPHONY the article, "Today's Highlights of Finance-Taxes-Business Trends" (page 30, this issue). The article's purpose is to provide Independent companies with a general review of the stock and bond price movements and to suggest, as far as possible, the timing of a financial climate most suitable for additional financing. For a telephone company to take advantage of this, it must, of course, have a budget covering several years in advance. This naturally requires a dependable growth

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estimate and not, in this period of telephone growth, simply an extension of a past growth trend.

(b) *Economic Plant Extension.* No telephone engineer, who has been extensively involved in telephone economic studies, requires advice as to the importance of dependable growth estimates in securing an economic answer. Given two practicable plans for plant relief, one may prove economical, assuming a given rate of growth and with a not too radical change in that rate of growth; and the other may prove to be economical. For example, on the basis of costs and annual charges a few years ago, it would be economical to provide cable relief to a section with a telephone center 2½ miles from the serving central office, as compared with the establishment of a small step-by-step office, with initial equipment of 100 lines. If an initial equipment of 150 lines were required for the given relief period, a new office would be economical. This change of 50 lines in equipment is, or should be, the growth over at least a three-year period.

To state a perhaps well-known fact, the economic size of any addition to telephone buildings, C.O. equipment, and probably outside plant is basically associated with the rate of growth that is to be cared for by that plant. In any plant addition, there are two cost factors involved: (1) The cost of doing the job, i.e., engineering, drafting and other job costs, and (2) a variable cost proportional to the capacity of the added plant. It is obvious that the longer the relief period, the more idle equipment there will be during this period, also the less the "job cost" per year. The economic relief period occurs when the sum of the annual charges on the "job cost" and on the idle equipment is a minimum, with the charges on idle equipment being one-half those on the total variable cost. On the basis of SXS equipment costs some years ago, the "job cost" was around $5,000 for additions to small to medium size existing offices. While up-to-date data on specific equipment economic relief periods are not at hand, there is little doubt that, in general, C.O. equipment additions are made much more often than they should be and the book value of this equipment needlessly increased.

As to the location of new central office buildings, the requirement in the past has been that the estimating of future growth and the distribution of this growth, either by blocks or sections of blocks, was the very foundation of an economically located central office building during its future life (about a 40-year dollar life). In the early years, the chief occupation of one section of an engineering department was the preparation of 20-year growth estimates block by block and the location of wire centers, locations where future outside plant costs are a minimum for the proposed C.O. district. Further reference to growth distribution will be made under Item (3).

In the more heavily developed sections, sizable existing trunk routes in the proposed building area have, of course, considerable weight in this connection. However, in the usual suburban sections, the location of a new central office building certainly justifies more consideration than that of a district tour to find what appears to be an attractive vacant plot. Furthermore, the size of the future building must be gauged and future switching requirements estimated. The size of the plot should probably be determined on the basis of a carefully prepared 20-year growth estimate multiplied by 2, at least.

ITEM (2). *The Basic Factors Required to Determine Future Telephone Growth.*

(a) *Population.* Population is, of course, the basic factor in estimating future telephone growth, aided by the number of households, the per cent of telephone usage, and the relation between residence and business main stations. As referred to briefly above, some skepticism among Independent companies about their ability to evaluate future population would probably be justified without outside aid. It appears advisable to consider briefly the reliability of one form of this aid.

The Census Bureau population estimates by states for 1960, 1965 and 1970, previously referred to, were made nearly four years before the 1960 Census final count by states was available. Now, if this early 1957 Census estimate came within less than 5 per cent of the 1960 actual count for 75 per cent of the states and within less than 2 per cent of the actual count for 31 per cent of the states, it would appear that the Census forecasts by states for 1965 and 1970 should be *fairly* dependable. The totals for the U.S. (48 states then) were, in thousands: Final 1960 Census count 178,466; Census Bureau forecast 178,479.

A brief consideration of some of the basic factors involved in the Census Bureau forecast will indicate the difficulties involved if Independent companies were to try to make their own evaluation of future population growths without some over-all guide.

The basic factors are as follows:

(1) *Migration "In"* — from 1955 to 1970. California, 3.8 million; Florida, 1.4 million; Michigan, Ohio and New York about one million each.

Migration "Out." Arkansas and Mississippi about three-quarter million each; Alabama, Kentucky and Pennsylvania over one-half million each.

(2) *Fertility.* 1954-55 rates (national) prevail for the 1955-60 period; then these rates decline linearly to 1950-53 levels.

(3) *Mortality.* Rates developed in the Division of the Actuary, Social Security Administration.

The above data on future U.S. population by states is outlined in "Current Population Reports, Population Estimates" dated Aug. 9, 1957, Series P25, No. 160. It is for sale by the Bureau of the Census. Price 10 cents.

The above pamphlet includes four series of estimates: Series 1 the highest and Series 4 the lowest. Series 1 is greater than Series 4 by:

1960	1965	1970
1.5%	3.9%	6.5%

Series 1 was chosen for the sample estimate outlined in detail later (chosen also before the 1960 Census was completed), experience indicating that the higher estimate is always the safest in telephone growth evaluation.

(b) *People Per Household.* In view of the fact that the term "households" is a basic item for estimating the number of residence main stations (which currently are around 85 per cent of total main stations), it becomes most important to obtain dependable facts about the future family characteristics of the growing population in any given area. For anyone who is interested in this factor, the book "American Families," by Dr. Paul C. Glick of the Bureau of the Census, is very interesting. (Publishers, John Wiley & Sons, Inc., New York City.) It was found fortunately in browsing around the Regional Planning Association quarters in New York City. This book covers, among other subjects: Family Living Arrangements, Household and Family Compositions, Future Household Formations.

A *household* is defined as the entire group of persons who occupy a dwelling unit. A *quasi household* is defined as the entire group of persons who occupy a housing unit *not* classified as a dwelling, i.e., inmates of institutions, roomers in lodging houses, guests in hotels, etc. Quasi households in 1950 constituted about one-half of 1 per cent of total households.

The volume of the 1950 Census Reports designated, "Population Characteristics," gives the following. "The number of smaller households has been augmented by the change in the pattern of family living and longer life span.

Figure 1

Usually the household of the past contained not only the head, wife and children, but often relatives of the family and sometimes servants. Of particular importance is the increasing number of older people. The growing tendency of these people to maintain separate households has been an important factor in contributing to an increasingly large number of small households."

The number of households has been recorded in the decennial Census Reports and the people per household for future purposes were probably obtained by projecting the past ratios. However, Dr. Glick, in his chapter on "Future Household Formation" states: "The Bureau of Census made its first specific attempt to provide data on future household formation during World War II when certain governmental agencies urgently needed such information to allocate materials for industrial production. Research workers in these agencies turned to the Bureau of the Census for advice on the probable future growth in the number of households. This stimulus led the bureau in 1943 to develop and publish its first set of household projections." Projection of households referred to herein were made in 1955 (for U. S.).

The following table was taken from Dr. Glick's book "American Families":

Percent Distribution of People Per Household — Total U. S.

		1900	1940	1950
1	Person	5.1	7.7	9.3
2	Persons	15.0	24.8	28.1
3	Persons	17.6	22.4	22.8
4	Persons	16.9	18.1	18.4
5	Persons	14.2	11.5	10.4
6	Persons	10.9	6.8	5.3
7	Persons	7.8	3.8	2.7
8-10	Persons Incl.	12.6	5.0	3.1
		100.1	100.1	100.1

The following was taken from U.S. Census Reports and Current Population Reports:

Total U.S.—Per Cent of Total Population 65 Years of Age and Older

1930	1940	1950	1955	1960	1965	1970
5.5	6.87	8.07	8.56	8.85	9.15	9.38

The people per household for each of the 48 states is shown in *Table III* of the Appendix. This factor and its derivation for the sample specific territory will be shown in Item (3).

(c) *Per cent of Households With Telephone Service.* The per cent of households having telephone service from Jan. 1, 1952 to Jan. 1, 1959, inclusive, for each state is given in the Appendix *Table III*. These data are from telephone statistics. There are some features, well known, of course, in connection with residence telephone service that should cause this percentage to crowd the 100 mark in some states, and in some to exceed this mark. In this age of vocal expression and with increased birth rates subsequent to World War II, the younger element must have telephone service or become delinquent. Where both Flat and Message Rate services are available, the household head must provide Flat Rate service for his "on the telephone" offspring and Message Rate for himself to have both service and a balanced budget. Some subscribers having shore resort homes continue service at their shore homes throughout the year for weekend visits. With three states having, on Jan. 1, 1959, residence service percentages of from 93 to 99, it appears not unreasonable to assume that a majority of the states will, in 1970,

have service percentages hovering around 90-95.

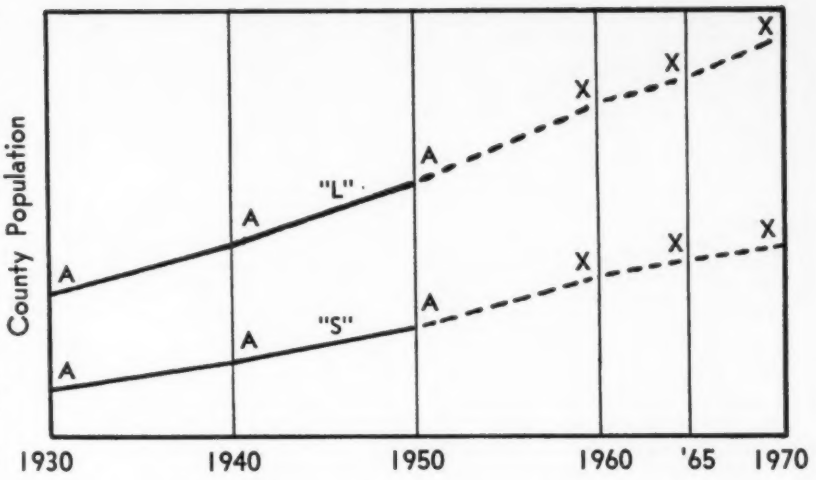
ITEM 3. *A Detailed Development of Business and Residence Main Stations in Service Jan. 1, 1960, Jan. 1, 1965 and Jan. 1, 1970 for a Specific Telephone Operating Territory Comparable to Medium-Size Independent Companies.*

The unsuccessful attempt to obtain a map of an Independent company's operating territory led to the necessity of having to select a portion of the Southern New England Telephone Co.'s area, or its Eastern Division. To try to obtain the proper atmosphere, this division will be termed herein the "New London Independent Telephone Co." The accompanying map *(Fig. 1)* is a copy of the Southern New England company's map which together with some main station data was furnished through the kindness of the rate engineer in New Haven.

On the map of Connecticut, having county and township boundaries, is indicated the territory for which future telephone growths will be obtained. Much the same type of map for each state is included in each decennial Census Bureau volume on "Population."

FIRST STEP. *In the Evaluation of Telephone Growth in the "New London Independent Telephone Co." Area.*

Population. It is, no doubt, unfortunate that this article started incubation before any of the reports from the 1960 Census were available. Revisions have been made in *Table I* of the Appendix, showing the *final* 1960 state Census populations in order to check the accuracy of the Census Bureau estimates for 1960. However, in this sample case, the estimated future population for the "New London Independent Telephone Co." area, had been estimated from trends to 1950, the last Census Report then available. Nevertheless, the 1960 population so estimated for this area is only 3.15 per cent lower than the actual 1960 Census Preliminary Report.



"L" = The general trend of the populations 1930 to 1970 for the three larger Connecticut Counties Individual graphs.
"S" = A similar trend for the five smaller Counties.
A's = Past Census populations.
X's = Trended populations to agree with guides, in construction mentioned under (1) and (2) previously.

Figure 2

As may be noted from the *Fig. 1* map, the "New London Independent Telephone Co." territory comprises three entire counties; New London, Middlesex and Windham; also portions of three other counties, New Haven, Hartford and Tolland.

The first step in estimating the population for the New London company's territory was to graph the population trends for all of the state counties individually so that the sum of the county populations thus obtained for 1960, 1965 and 1970 would check with the Census State Estimate for these dates. There are two guides for the construction of these future population trends:

(1) The general slope of the actual trend for each county from 1930 to 1950 inclusive.

(2) As mentioned above, checking the sum of the county graph population for 1960, 1965 and 1970 with the Census State Estimate.

The sketch in *Fig. 2* is intended to represent a sample of a graph constructed to obtain the above Connecticut county populations.

The resulting populations obtained

	CENSUS REPORTS						OBTAINED BY GRAPHS			
Counties	1930 Population	% Inc. Per Dec.	1940 Population	% Inc. Per Dec.	1950 Population	% Inc. Per Dec.	1960 Population	(1) 1960-1970 % Per Dec.	1965 Population	1970 Population
	000 omitted						000 omitted			
New Haven	463	4.5	484	12.5	546	24.8	682	13.6	712	775
Hartford	421	6.8	450	20.0	540	24.7	673	13.7	702	765
Fairfield	387	8.0	418	20.3	504	25.3	632	13.0	652	713
New London	119	5.0	125	16.0	145	25.5	182	14.0	190	207
Litchfield	83	5.0	87	13.8	99	26.2	125	14.3	131	143
Middlesex	51	9.8	56	19.5	67	22.4	82	21.8	92	100
Windham	54	3.6	56	10.6	62	24.2	77	17.0	83	90
Tolland	29	10.2	32	40.5	45	26.5	57	15.6	61	66
Connecticut State	1,607	6.4	1,709	17.0	2,008	25.1	2,510(2) 2,535(3)	15.6	2,622(4)	2,859(4)

(1) % Increase 1960 to 1965, 1965 to 1970 not shown.
(2) Preliminary Census Count.
(3) Final Census Count shown in Appendix, Table I.
(4) Census Estimates.

Table 1. Past census population—1930 to 1950, inclusive—and the estimated future population—1960 to 1970—for the state of Connecticut (in thousands).

Counties	CENSUS 1930		1940		OBTAINED BY GRAPHS 1950		1960		1965	1970
New London	118,966		125,224		144,821		182,000		190,000	207,000
Middlesex	51,388		55,999		67,332		82,000		92,000	100,000
Windham	54,077		56,223		61,759		77,000		83,000	90,000
	224,431		237,446		273,912		341,000		365,000	397,000
Tolland County Towns Included										
Hebron	(Actual population for one date given to indicate size of towns)				1,320					
Columbia					1,327					
Andover					1,034					
Coventry					4,043					
Wansfield					10,008					
Willington					1,462					
Total	8,073	27.5	10,306	86.0	19,194	30.0	25,000	20.0	27,000	30,000
Hartford County Towns Included										
Southington					13,061					
Plainville					9,994					
New Britain					73,736					
Berlin					7,470					
Newington					9,110					
Total	93,113	3.3	95,948	18.0	113,371	21.7	138,000	17.5	150,000	162,000
New Haven County Towns Included										
Meriden					44,088					
Wallingford					16,976					
Total	52,759	3.0	54,282		61,064	12.5	72,000	11.0	76,000	80,000
New London Co. with portion of two towns out										
North Stonington					1,367					
					11,801					
Stonington-Out[1]	—5,470		—5,500		—5,920		—6,620		—7,000	—7,420
Total Company	372,906		392,482		461,621		569,380		611,000	661,580

[1] Portions of both towns excluded.

Table 2. Population in the territory of "New London Independent Telephone Co."

from graphs such as shown in *Fig. 2* are given in *Table 1*.

Now for the towns included in the New London Telephone Co. territory lying in bordering counties: Individual graphs similar to *Fig. 2* were drawn for the total of the six towns in the New London Telephone Co. area situated in Tolland County; for the total of the five towns in Hartford County; for the total of the two towns in New Haven County. In the case of the towns included in Tolland County, the future trend was based upon their past trend, also the *future trend* of Tolland County. In Hartford County, it was assumed that with the inclusion of New Britain City (also the town of), the past trend would largely control the future trend of these five towns.

In New Haven County, it was assumed that the future population trend for the two towns would be governed largely by the past population trend of New Haven County, excluding in this latter trend the cities of New Haven and Waterbury. The results of these population graphs are shown in *Table 2*. An adjustment was made as indicated in the southeast corner of New London County for the territory of the Westerly Automatic Telephone Co.

Following the completion of this sample process [Item (3)] of evaluating future telephone growth, some additional comments will be made regarding future populations for Independent telephone companies whose territories comprise a few counties in states having a large number of counties.

From a summarization of the data in *Table 2*, the total population in the "New London Telephone Co." territory is shown in *Table 3*.

STEP 2. *The Development of the Factor, People Per Household Applicable to the New London Telephone Co. Area.*

The data at hand in this factor is outlined in the following table:

In Thousands	1930 Pop.	1940 Pop.	1950 Pop.	1960 Pop.	1965 Pop.	1970 Pop.
			(000 omitted)			
Total Three Counties	224	237	274	341	365	397
Tolland County	8	10	19	25	27	30
Hartford County	93	96	113	138	150	162
New Haven County	53	54	61	72	76	80
Stonington Town Out	—5	—6	—6	—7	—7	—7
Total New London Company	373	392	461	569	611	662

Table 3. Summarization of data presented in *Table 2*, showing total population in the territory of "New London Independent Telephone Co."

	1940	1950	1955	1956	1957
	(a)	(a)	(b)	(b)	(b)
Total U.S. . .	3.78	3.52	3.60	3.50	3.52
Conn. State.	3.79	3.51	3.61	3.58	3.52
	1958	1959	1960	1965	1970
	(b)	(b)	(c)	(c)	(c)
Total U.S. . .	3.50	3.47	3.39	3.43	3.44
Conn. State.	3.46	3.49			

(a) From U.S. Census

(b) From Telephone Industry Statistics

(c) From "American Families"—Dr. Glick

People per Household
Connecticut Counties—From Census

	New Haven	Hartford	Fairfield	New London
1940	3.8	3.9	3.8	3.8
1950	3.5	3.5	3.5	3.5
	Litchfield	Middlesex	Windham	Tolland
1940	3.7	4.0	3.7	3.8
1950	3.4	3.6	3.4	3.8

Now to obtain the 1950 weighted factor of people per household for the New London Telephone Co. Area. (Numbers below as used for columns in Table 4.)

We have in column (2) People per household, each county.

We have in column (3) People in each county, also in New London Telephone area.

We have in column (3-T) Total people in New London Telephone Co. area (461,620—see total of Col. 3 of Table 4).

(3) ÷ (3-T) = % of total people in telephone company area that are in each county.

For a given county, above % times that county's people/household gives the weighted people/household for that county in total telephone company area.

The final step insofar as Residence Main Stations are concerned, is to determine the percentage of households that have telephone service. In this outline this percentage must be estimated from past Connecticut state records. Independent companies, however, have their residence records for their several C. O. districts, and with their respective populations, the total area percentage of households with service may be computed as were the people per household previously computed herein. Only about 23 per cent of the 1960 Connecticut population is within the area under consideration. The southwest portion of the state is a heavy commuter section and it is believed that this portion of the Long Island Coast section has a large proportion of the summer residences. It is thought, therefore, that the area under consideration should have a somewhat lower percentage of households with service than has the total Connecticut state.

These percentages for the total Connecticut state during the last decade or so are as follows:

1950 (1) Connecticut Counties	(2) People per Household	(3) Population of County in "New London Telephone Co."	(4) % Portion of each County in "New London Telephone Co."	(5) Col. (2) times Col. (4)
New Haven	3.5	61,064	13.2	0.46
Hartford	3.5	113,371	24.5	0.87
Fairfield	3.5	—	—	—
New London	3.5	138,900	30.2	1.06
Litchfield	3.4	—	—	—
Middlesex	3.6	67,332	14.6	0.53
Windham	3.4	61,759	13.4	0.45
Tolland	3.8	19,194	4.1	0.16
		461,620	100.0	3.53

SOME DEDUCTIONS FROM THE ABOVE

People per Household	Connecticut State	New London Telephone Co.
1950	3.51	3.53
1959	3.49	3.51 (Assumed)
1960	—	3.50 (Assumed)
1965	—	3.45[1] (Assumed)
1970	—	3.45[1] (Assumed)

[1]The bases for these assumptions are (1) it will be noted from the above that the people per household for the U.S. and for Connecticut state are, in general, not far apart; (2) Dr. Glick's estimates for the total U.S. which take into account the effect of the increasing percentages of people 65 years of age and over.

Table 4. People per household in territory of "New London Independent Telephone Co."

% of Households with Telephone Service (From statistical data)

1952	1953	1954	1955
87	89	91	93
1956	1957	1958	1959
95	98	99	99

As indicated, for six years there has been an average two point increase. Now, feeling as we stated previously, that the above percentages are high for the given area, the average of the last five years is 97 per cent and is assumed for the area for 1960. Further, rather than a two-point gain per year, only a one point gain will be assumed, so we have the following percentages of households with service:

1960	1965	1970
97	102	107

By this time an association of the preceding factors should produce some future total Residence Main Stations and they are as follows:

The next step is to determine the number of Business Main Stations and the percentage that the total Business Main Stations is of the total Residence Main Stations. This percentage, of course, can be readily obtained by Independent companies from their records. Analyses of these percentages from records kindly provided by the Southwestern Bell Telephone Co., Southern New England Telephone Co. and New York Telephone Co. for the states of Kansas, Texas, Connecticut and New York, with total Residence Main Stations from 400,000 to 4,000,000, showed there was a range between 15 and 20 per cent total business of total residence main stations. It is understood that, in general, as the Residence Main Stations increase, the per cent Business of Residence declines somewhat. In New York State this percentage decreased from 19 per cent in 1954, to 18 per cent in 1959. Records over short periods do not always indicate this decline, but individual Independent records should indicate the trend.

TOTAL AREA OF "NEW LONDON INDEPENDENT TELEPHONE CO."

Year	Total Population	People per Household	No. of Households	% Households with Service	Total Res. Main Stations	Avg. Growth per Year
1960	569,380	3.50	162,500	97	157,500	
1965	611,000	3.45	177,000	102	181,000	4,700
1970	661,580	3.45	192,000	107	205,000	4,800

This data for the Southern New England Telephone Company is as follows:

	1-1-58	1-1-59	1-1-60
Total Company—Main Stations			
Business including all coin & PBX Trunks	116,407	119,154	123,647
Residence	635,265	654,582	669,493
% Business of Residence*	18.3	18.2	18.5
Eastern Division or "New London Independent Telephone Co."			
Business (As above)	24,079	24,579	25,710
Residence	144,952	149,309	154,039
% Business of Residence*	16.5	16.4	16.6

*The cities of New Haven and Hartford, of course, raise this percentage.

The preceding percentages are not very indicative, as perhaps it could be said that business in 1959 was better than in 1958. In fact, except for a few cities, New Britain in particular, this is not a business area.

The following per cent, Business Main of Residence Main will be assumed:

1960	1965	1970
16.5	16.3	16.1

The actual and estimated Residence and Business Main Stations for the "New London Independent Telephone Co. area" will now be outlined:

Telephone engineers evaluating growths in their own states will probably do better.

As pointed out earlier, the above sample evaluation of future main station growth was unavoidably based upon an area of a state having a total of eight counties. Many Independent companies' operating areas may cover only a few counties in states having 30 to 40 or more counties. What would then be the procedure in obtaining the future population in such cases?

The first advisable move is to graph the entire given state's population, 1940 to 1970, i.e., population vs. years as shown in *Fig. 2*. The required populations for states are shown in tables in the Appendix. The populations for 1965 and 1970 are the basic targets—the indicated accuracy of which has been previously attested to. There are also available 1960 Census Population Pamphlets for each state. These pamphlets provide the 1960 county populations and all of the town populations in each county. Similar data will be found in bound volumes of previous censuses in business libraries. *Fig. 3* is a specimen portion of a Census Tract. These tracts are available as follows: 1950 Census for 62 cities; 1960 Census for 175 cities.

As to the evaluation of future populations for portions of a given state, the following procedures appear advisable:

(1) Graph the past population for each city in the given state separately. Most data on population growth indicate a general movement toward urban residence. The future trends should be extended with an eye toward the future growth of the state (Census Estimate).

(2) Graph the past population for groups of counties outside of the telephone company area, excluding the cities under (1); the grouping of these counties to be based upon similarity in population characteristics, i.e., rural, suburban, industrial, etc.

(3) Graph the past population of each county in the telephone company area separately for closer inspection regarding population characteristics, etc.

Now the basic requirements of the extended population trends to 1965 and 1970 are that the sum of the 1965 population indicated by the extended trends under (1), (2) and (3) above must equal the 1965 state population (Census Estimate), and the same condition holds, of course, for the sum of the extended trends at 1970.

With the future population for 1965 and 1970 determined as above, the additional factors involved, shown also in the sample case, will be briefly outlined again:

People per Household

(1) For state—1940-1950—Appendix *Table III.*
(2) Cities and Counties—1960 Census Reports.

% Telephone Usage

(1) For state—1952 to 1959—Appendix *Table III.*
(2) From telephone company's records of Residence Main Stations in political areas for which populations have been estimated as above.

% Bus. of Residence Main Stations

Company records.

There are always the two questions regarding growth in a telephone area: "How Much," and "Where." As to the "Where," with the future county growths for 1965 and 1970 established, and with the population of every town in the given county available from 1940 to 1960, the population of each town may be projected so that the sum of the town projections will check with the county total.

With the future total main stations estimated for a given town, the future lines can, of course, be obtained on the basis of the present ratios, main stations to lines, modified by expected future changes in party service. With some field surveys and existing cable records, the future lines in small groups of blocks can probably be determined with the total previously estimated town line as a guide. This data, with a traffic department estimate of trunks, should provide for the proper location of a new office or for the location of relief cables.

In answer to a recent request to the Population Division, Bureau of the Census, for information regarding recent Census Bureau estimates, the following pamphlet was received:

"86th Congress Committee Print No. 5; Water Resources Activities in the

(Continued on page 42)

ACTUAL

Date	Res. Main Sta. In Service	Yearly Growth	% Bus. of Res.	Bus. Main Sta. In Service	Yearly Growth	Total Main Sta. In Service	Yearly Growth
1-1-58	144,952		16.5	24,079		169,031	
1-1-59	149,309	4,357	16.4	24,579	500	173,888	4,857
1-1-60	154,039	4,730	16.6	25,710	1,131	179,749	5,861
ESTIMATED							
1960	157,500		16.5	26,000		183,500	
1965	181,000	4,700	16.3	29,500	700	210,500	5,400
1970	205,000	4,800	16.1	33,000	700	238,000	5,500

As mentioned earlier, the above estimates of the 1960, 1965 and 1970 population and Residence Main Stations for the New London Telephone Co. were completed prior to: (1) The availability of any 1960 Census State Reports; (2) the receipt of the main station data provided by the Southern New England Telephone Co. Rate Engineer. Therefore, a comparison of the 1960 estimated and actual population and the estimated and actual Residence Main Stations for the New London Telephone Co. area is justified.

The Business Main Stations could not, of course, be estimated until after the actual records of Residence and Business Main Stations were received.

The division of total future main stations into individual and party service will be governed, of course, by the individual telephone company's present record of, and probable future changes in, station classifications.

A comparison of the above actual and estimated data is as follows:

New London Independent Telephone Co. Area		
Actual 1960	597,747	154,039
Estimated 1960	569,380	157,500
% Error	—4.74	+2.24

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The Plant Man's NOTEBOOK

By RAY BLAIN, Technical Editorial Director

OUT IN IDAHO recently, a power company had several high poles exposed to an oncoming brush fire, and immediate action was required to provide some type of fire protection.

A quick thinking power company employe rushed to the nearest supermarket and purchased an armful of household aluminum foil. He and several other employes, wrapped and tacked the foil around the lower 6 feet of each pole.

The flames went right past the poles, and none was damaged — not even scorched.

•

Pole setting in the old days was a real he-man's job. We dug the hole by hand with a long handled shovel, spoon and a digging bar. Then, pike poles were used to erect it. Next, the laziest man on the job shoveled in the dirt while four or more men tamped the pole in place.

But the machine age has changed all of this in recent years. A power-driven earth auger digs the hole. A derrick raises the pole and drops it into the hole. A device on the end of the derrick lines it up, and a hydraulic tamper takes the work out of tamping. About the only manual job left is that of the man shoveling dirt into the hole around the pole. Perhaps someone will eventually design a machine to perform even this simple task.

•

Twenty-five years ago, four-party lines accounted for 58 per cent of Michigan Bell Telephone Co.'s residential service. At present, they represent only 11 per cent. Today, most customers want one-party service. Michigan Bell is now able to provide private lines to almost all who want them.

It is a well remembered fact, that after the war, telephone companies were unable to give every subscriber the kind of service he wanted without a wait. Facilities in many exchanges were "frozen" for a long time, and there just were not enough one-party lines to go around. But, starting recently, most Michigan Bell customers have been able to ask for, and get, private-line service within the normal two-day period.

Four-party service has become less popular with telephone users in recent years. People want privacy. In this modern age, customers don't share automobiles or TV sets or stoves. Neither do they want to share their telephone lines. Subscribers don't want to wait to use their telephones. And they know their friends often have difficulty reaching them if they are on a busy four-party line. They know also that one of the other subscribers on their line may leave the receiver off the hook and interrupt service for all four families. This is most annoying, naturally. No wonder more and more people are asking for private-line service.

Little by little, four-party service is fading away in Michigan. This company has hopes that it can encourage all of its remaining 170,000 four-party subscribers to accept two-party or individual lines by 1965.

As of July 1960, the last Illinois Bell four-party customer had been given a higher grade of service. Not one customer disconnect resulted from that company's program promoting one and two-party development.

Slowly, but surely, one-party service is winning in popularity over other service offerings. This is because the telephone subscribers want it that way.

•

A new telephone directory was published and distribution was started in San Juan, P. R., when it was discovered that a serious error had been made. It seems that someone had transposed a numeral in the emergency section of the directory, and when the fire department was called, a cold storage plant would answer.

The fire department's correct number is 2-1120, but in the directory it was listed as 2-1210. Corrective measures were taken immediately. Only 1,000 copies of the directory with the incorrect listing had been distributed. Immediate action was taken to remove these from use in order to avoid possible serious consequences.

•

Recently, we spent two nights in the "Holiday Inn" motel at Huntsville, Ala. Each unit was equipped with a dial telephone. The instructions advised guests to dial 3 for the manager, 4 for the valet, 5 for the restaurant, etc. We could make local calls by dialing 8.

Meters on each line in the motel office maintained a count of local calls and the toll operators advised the motel management of toll charges.

This motel service was equal to, or better, than one might expect in a large metropolitan hotel.

•

Now available is a public address unit built into a standard 12-inch x 18-inch attache case which it is claimed will reach an audience of 200 persons. It will give up to a year of normal service life on one set of batteries. The case also has space for documents and a writing platform for use while traveling. The unit is furnished complete with lavaliere microphone and 25 feet of cord.

"Cross Talk"

We should always be tolerant with people who disagree with us. After all, they have a right to their ridiculous opinions.

•

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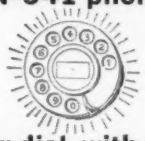
IS THERE A BETTER TWO-PIECE TELEPHONE?

Yes! Built into today's N-541 phones are two new features that are definite customer benefits, definite user conveniences!

Item No. 1—North N-541 phones are now available with the industry's first Line Powered Lighted Dial!  **There's no extra cord to be plugged into an AC outlet. There is a softly glowing dial, with the light intensified when the handset is lifted. Location in the dark is positive and convenient—dialing is simple and easy.**

The Line Powered Lighted Dial is a positive "user benefit"!

Item No. 2—North N-541 phones are now available with the industry's only Transistorized Electronic Tone Signal. No more harsh, raucous, strident, nerve-jangling bells—the North Tone Signal is soft, restful, musical. It means a quieter home or office—a far more pleasant announcement that "you are being called".

The Transistorized Electronic Tone Signal is a positive "user benefit"!

Add these two exclusive features to transmission and reception that meets the highest standards, compensating network, a dial that will give more efficient pulsing and outlast all others and you have the finest two-piece telephone on the market.

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THE DYNAMIC FORCE IN THE TELEPHONE INDUSTRY

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No. 1 in a series of factual presentations on North N-541 Telephones

today's Highlights

of finance-taxes-business trends

by Willard F. Stanley

REACTION IN BOND MARKET: The 30 days ended April 24 witnessed a definite retreat in bond prices from those recorded 30 days before that date. A correction of the sharp rise in prices (and fall in yields) of the previous 90 days was overdue, and, as we expected, it occurred quite promptly. New utility issues brought to market during the above 30-day period fared somewhat worse in yield than their predecessors of 60 to 90 days earlier. The sharp decline in bond prices is perhaps best exemplified by the Wall Street Journal's tabulation of new utility bonds. As of Apr. 19, average yields based on the then-current bid prices of eight new utility funded debt issues registered 13 decimals (0.13 per cent per annum) above the average yield represented by the original offering prices of the same securities. This reversal of trend followed about 90 days or more of rising bond prices and lower yields as reflected monthly by Wall Street Journal tabulations showing a consistent lowering of yields on current bids compared with original offering prices. It is significant that the downturn in prices was experienced in a period when the number of new issues still remained meager, as witness the eight issues included in the tabulation compared with a usual 12 or 13 so reflected.

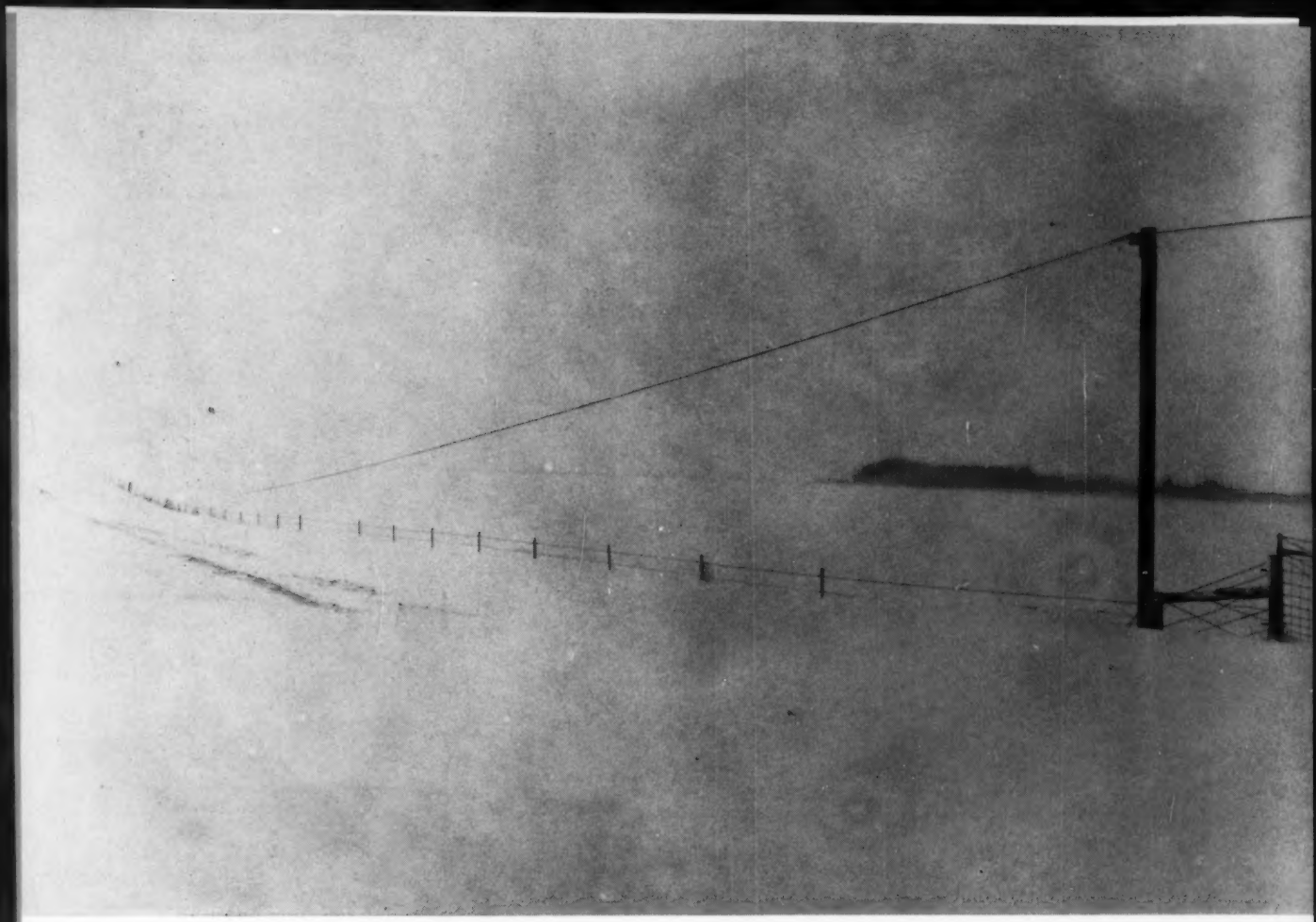
We are inclined to think the rise in bond yields may have about run its course, or nearly so. There is some talk that the Federal Reserve will reduce its rediscount rates, but most informed opinion does not feel this is likely. With signs that the recession is "bottoming out," the situation scarcely seems to call for drastic remedies on the credit side.

As to those utilities which were unable to complete their new funded debt financing prior to the recent upward movement in bond yields, adherence to normal schedules now seems indicated. At present levels there appears to be as much chance of yields soon turning downward again as continuing to ascend. So, raising funded debt money as needed, without either acceleration or deferral of the timing of the offerings, seems the wisest present course.

Common stocks of utilities in general (telephone companies included) continue to hold at levels highly attractive to the issuer—in most cases at an indicated cost of less than 5 per cent before selling expense. While there seems nothing on the horizon likely to affect these levels adversely, it nevertheless seems wise to take advantage of present favorable conditions by marketing common stock needs both for the present and also to the extent of a year or two ahead. Expectancy of substantial upward earnings which would increase the selling price of equity securities would, of course, be one exception to the general recommendation given above.

* * * *

STOCKS MARK TIME: The stock market probably deserves credit for being able to mark time throughout the 30-day period ended Apr. 28, during which it had to contend with almost daily crises either in Laos or Cuba. This was on top of a substantial previous rise for the year and an even greater ascension from the lows of last October. Stocks were faced, simultaneously, with (1) unpleasant international news and considerable individual statistical items of unfavorable import in the domestic scene, and (2) increasing evidence of the beginning of the end of the



"The lines are down... but I hear you perfectly"

These words came from a Tyler, Minnesota farm wife during a severe ice storm last winter. She could see that the lines were down. But there was no interruption in service.

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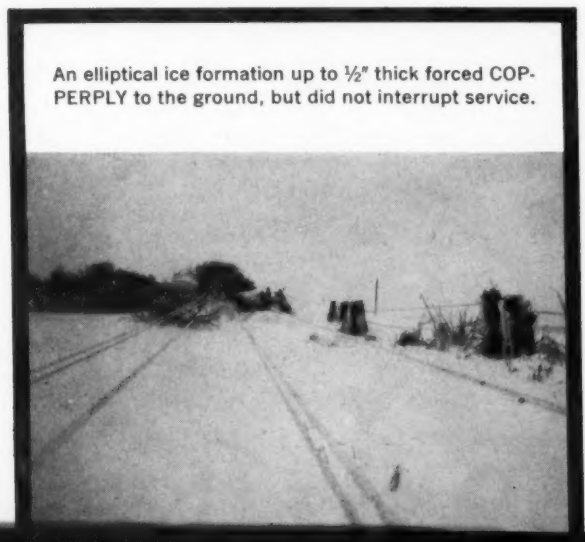

An elliptical ice formation up to ½" thick forced COPPERPLY to the ground, but did not interrupt service.

At Tyler, National-Standard COPPERPLY remained under three feet of snow in some places for as long as three months, with no interruption in line service. In addition, long-span systems cut installation costs, eliminated the problem of mid-span hits, reduced tree trimming and maintenance costs. For information on the complete line of COPPERPLY conductors, write National-Standard Company, Niles, Michigan. C-61-2

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recession. All of this "jelled" to a stalemate, prices at the close on Apr. 28, according to the New York Times 50 combined stock average, being quite close to those indicated at Mar. 24. The average at the former date was 8 per cent above the 1960 close, 10 per cent below the close for 1959, and 2 per cent above the end of 1958.

Continued backing and filling in the stock market, with highly selective gains and declines, often of a substantial nature, seem the likeliest expectation for the next 30 to 60 days. Even continued improvement in the national economy may not bring forth a further prompt rise in the market, since "bottoming out" of the recession has already been anticipated and may already have been fully discounted. Improvement in statistical indices may find the market unreceptive because such improvement has been previously anticipated and reflected in market levels.

* * * *

RECESSION REMAINS HANGING FIRE: Looking over the various economic elements which should point the way out of the current recession, the conclusion seems to be that the end of the recession, while not unlikely at an early date, is still to be proven. Gross national product, for instance, was down slightly for the 1st quarter of 1961. On the other hand, industrial production has just registered a small monthly increase, the first since the recession began many months ago. Store sales have been generally good recently but may have been benefitted unduly by good weather. Everything seems to have some "if" or "but" connected with it, so when an attempt is made to sum up the results, the net doesn't stand forth strongly as either favorable or unfavorable. There are so many cross-currents and cancellings-out of different trends, that a conclusive 10-word description of the economic picture becomes increasingly difficult. We believe the chances somewhat favor an overall improvement from here on, but feel this is still something of which no one can yet be certain.

No matter whether the recovery be slower than many expect, or not, the utility industry can seem logically to expect continued earnings improvement for most companies and probably either an adherence to present high price-earnings ratios for utility equities or even a possible further improvement therein.

* * * *

PRESIDENT'S NEW TAX PROPOSAL: After germinating for about three months, new tax proposals have been announced by the President. The principal feature is the granting to taxpayers of a new tax credit for plant expansion. The proposal, we think wisely, refrains from dealing with depreciation and grants the tax credit directly. The credit would reduce federal income taxes by 15 per cent of the excess of expenditures for new property (with at least a six-year life expectancy) completed after Jan. 1, 1961, over the annual depreciation allowance for federal taxes for the same year, plus a further credit of 6 per cent of the amount of expansion exceeding 50 per cent but not 100 per cent of annually allowed tax depreciation. Thus a company with $100,000 annual depreciation allowances and expenditures for plant expansion closed to plant account in the year to the extent of $200,000, would receive a credit against its taxes for that year of 15 per cent of $100,000 or $15,000, plus 6 per cent of $50,000 (the difference between 50 per cent and 100 per cent of the depreciation allowance) or $3,000, making the total annual credit $18,000. This is equivalent to 18 per cent of the excess of expansion over depreciation or 9 per cent of total expansion expenditures. In addition there is a 10 per cent minimum tax credit for annual expansion up to $5,000.

Unfortunately, this proposal excludes public utilities (except railroads) from the benefit of these credits. This seems an unfair and unwarranted exclusion, since Congress twice already has included public utilities in tax legislation having a substantially similar intent (i. e., to stimulate expansion). This was done both in the 1950 Revenue Act with respect to accelerated amortization and in the 1954 Revenue Act with respect to liberalized depreciation.

The new credits are tied in the proposal with various other tax amendments, including provision for withholding of dividends and interest, and elimination of the present dividend tax credit and exemption. As the latter items and some of the others may prove highly controversial, there is of course the chance that the whole proposal may fall by the wayside.

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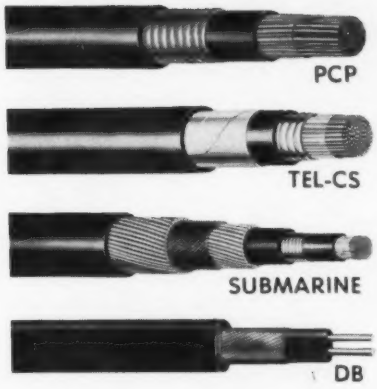

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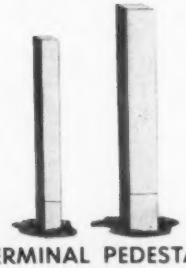

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Courts and Commissions

Begin Study of N.C.-S.C. Inter-Intrastate Tolls

The North Carolina Utilities Commission held initial hearings on Apr. 26-27 in connection with its investigation to determine why interstate toll charges are less than intrastate tolls for the same distance. It then recessed the proceedings upon motion of Assistant State Attorney General Kent Burns to enable individual telephone companies to prepare for separate hearings on the question (TELEPHONY, July 30, 1960).

The North Carolina commission on July 15 last year ordered an investigation into the long distance rates charged by 35 companies operating in that state. The order stated it appeared "intrastate toll rates and charges of the same companies were 'in excess' of those for interstate calls of comparative mileage."

The commission further stated the investigation was called to determine whether the rates, charges and practices are "unjust, and unreasonable, prejudicial, preferential or otherwise in violation of the law."

All telephone companies operating in the state were represented at the recent April, 1961 hearings.

Russell E. McKelvey, an engineer on the staff of the commission, began the hearings by citing examples where it costs less to make telephone calls across the state line than to make a call of the same distance within the state. He cited, for instance, calls from Raleigh to Dillon, S. C., which straddles the North Carolina-South Carolina line. A person-to-person call to the North Carolina portion of Dillon would be $1.15 for three minutes; while the same call to the South Carolina part of Dillon would be only 85 cents, he said.

"Actually," Mr. McKelvey said, "the same facilities would be used for transmitting the call from Raleigh to the Dillon exchange, regardless of whether the call is interstate or intrastate."

Numerous similar examples were cited.

J. D. Porter of Atlanta, Ga., vice president of Southern Bell Telephone & Telegraph Co., pointed out that interstate long distance tolls are set by the Federal Communications Commission and that state tolls are set by the utilities commission. He said the FCC is charged with providing a fair return on properties used for long distance service; while the utilities commission is charged with giving the companies a fair return, not only on their long distance facilities, but also on facilities used for local calls.

J. M. Wasson, vice president and general manager of Southern Bell's North Carolina operations, said present telephone earnings in North Carolina must be improved in order to support construction and improvement programs. He said Southern Bell has invested almost 216 million dollars in expansion and improvement of service in North Carolina in the past 10 years, and plans to spend about 53 million dollars for further expansions and improvements in 1962 and 1963. He said earnings "must be sufficient to justify this additional capital investment."

"Our present earnings in North Carolina," said Mr. Wasson, "are not carrying their full share of the load, and in order to support the construction and improvement program we urgently need here, we must have improved earnings."

Companies contended during the two-day initial hearing that many factors affect the difference in interstate and intrastate ratings; and the recess was called in order to enable individual companies to prepare for separate hearings on the question of separation of property allocated to interstate and intrastate service, and as to methods used in toll settlements among telephone companies involved.

N. Y. Company Gets Raise; Will Offer One-Party Service

The Dalton Telephone Co. has been granted a rate increase effective May 1 by the New York Public Service Commission. The new tariff is expected to produce about $2,400 in additional revenue.

The Dalton company, which presently provides multi-party manual service to about 240 stations, was also given permission to offer one-party service to those subscribers desiring it.

Operating expenses for the next 12 months are expected to exceed those of 1960, the Dalton company said, by more than $2,600, due largely to wage increases.

Old and new rates are as follows:

	Old	*New*
One-party residence	——	$4.75
Multi-party residence	$3.00	3.85
One-party business	——	6.25
Multi-party business	4.00	5.00

USITA Opposes GSA Move to Compel SAGE Tariff Filings

The United States Independent Telephone Association on Apr. 20 filed with the Federal Communications Commission a brief in opposition to the petition of the General Services Administration asking the commission for a declaratory ruling that all communications equipment and services furnished in connection with the SAGE (Semi-Automatic Ground Environment) system are used in interstate or foreign telephone service and that the American Telephone & Telegraph Co. "and others" be required to file tariffs for such "internal SAGE equipment."

"And others" includes Independents participating in furnishing facilities for the SAGE network.

The GSA petition seeks to divest the state regulatory commissions of all jurisdiction over SAGE communication and declare exclusive jurisdiction in the FCC.

AT&T previously had filed a statement in opposition to GSA's request.

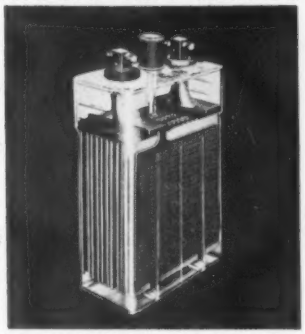
The USITA petition cited that "the Independent, or non-Bell, segment of the telephone industry, which USITA represents, has a real and vital interest in the matters and issues raised by the GSA petition, and wishes to be heard with respect thereto."

The National Association of Railroad & Utilities Commissioners also has forwarded a letter to the FCC opposing the GSA move. The NARUC pointed out that the FCC can determine it has exclusive jurisdiction only if it can be found that no "intrastate communica-

(Continued on page 38)

THE BATTERY DESIGNED FOR COMMUNICATION SERVICE—

Specify C & D *PlastiCell** Only C & D, of all the communication batteries (lead-antimony grids) available at competitive prices, have the features that make it the best choice for communication applications. For example, compact C & D PlastiCell batteries ■ Provide 12 to 14 years life in full float service ■ Eliminate the possibility of early cell failure due to sediment accumulation by triple insulation of plates ■ Reduce accidental breakage by using a shock-resistant plastic container sealed with a Hi-Impac cover ■ These benefits, plus many others make C & D your better battery buy. There are more than 30 PlastiCell sizes, all in plastic, covering 10 to 1680 ampere hours. One will meet your communication battery needs — whether for telephone, carrier or microwave service. A C & D representative will be glad to discuss your problems and make a recommendation. Or, write for a copy of Bulletin T-533.



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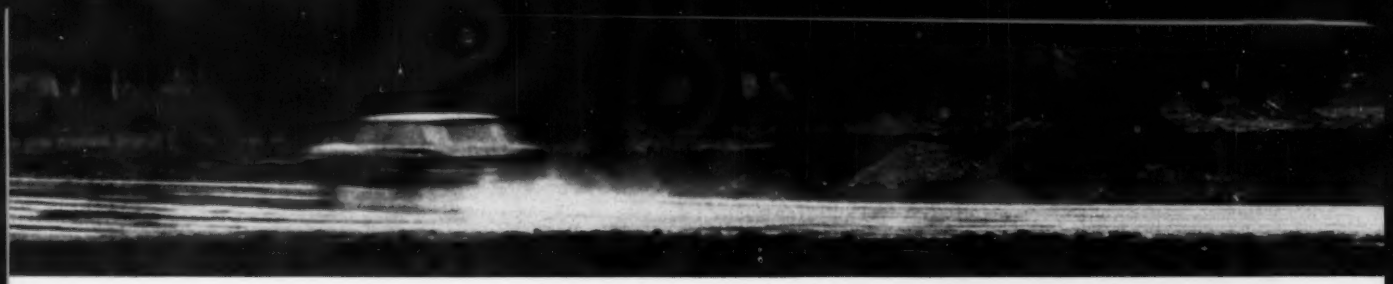
Manufacturers of Slyver-Clad® Industrial Batteries • PlastiCell® and PlastiCal® Batteries for Communications, Control, and Auxiliary Power • Producers of AutoReg® Silicon Chargers and AutoCal® Charger-Battery Combinations

*Trademark

People on the move need paystations



People need paystations. Every 24 hours, Americans travel over a billion miles on wheels alone. You see the result of this movement everywhere—in shopping centers and parking lots...in gas stations and drive-ins...in motels and new roads. And, in each of these locations, people need quick, convenient communication. They need paystations!

What are the best spots for paystations in your area? It's easy to find out. Write for a free copy of our handy Survey Simplifier. It helps you find the best spots for paystations in your community. For your free copy, just write Automatic Electric Sales Corporation, Northlake, Illinois. In Canada, Automatic Electric Sales (Canada) Ltd., 185 Bartley Drive, Toronto 16.

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GENERAL SYSTEM

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Installation

You can save time and labor by specifying INDIANA Terminal Housings for your buried wire and cable jobs. The heavy No. 10 gauge steel stakes of the pedestal type can be driven into the ground. The cover plate can be attached or removed with ONE screw. All models are designed for ease in mounting terminal blocks and loading coils and in making splices or connections.

INDIANA Terminal Housings are heavily galvanized AFTER forming for longer life. Available in both pedestal and pole-mounted types and in four models capable of accommodating from one pair to 400 pairs.

Ask your distributor of telephone supplies or write for Bulletin No. TH-101R.

tions service" is involved. The NARUC said it is apparent from the GSA affidavit accompanying the petition that some SAGE services are intrastate, particularly those which have no access outside the Direction Center.

Rule TELPAK Applies Only to Single Broad Band Channels

The American Telephone & Telegraph Co. has been ordered by the Federal Communications Commission not to apply its TELPAK rates in those cases in which a customer is furnished the required number of lesser channels derived from convenient sources, instead of with a single broad band channel subdivided into lesser bandwidth channels.

The FCC said that if AT&T does apply these rates to a combination of channels, it is interpreting its TELPAK tariff contrary to its terms. (TELPAK became effective Feb. 16, 1961—TELEPHONY, Feb. 25.)

This interpretation is in violation of Section 203(c) of the Communications Act, the FCC has held.

The AT&T has been ordered to notify the commission within 10 days of the steps it has taken to apply its rates in accordance with the tariff.

Hear 2 Sale Requests; Get 3 Rate Applications in Wis.

The Wisconsin Public Service Commission on May 1 and 2 was to have heard the applications of the Albion-Dunkirk Telephone Co. for authority to sell and of the General Telephone Co. of Wisconsin, Madison, to purchase the former's property; and of Linden Telephone Co. to sell and General Telephone Co. of Wisconsin to buy, its properties and apply General's appropriate rates to the acquired exchange.

•

The commission on May 4 was to have received the applications of three companies to raise their rates. They are the New Franken Telephone Co., Soldiers Grove Cooperative Telephone Exchange, and The Yuba Telephone Cooperative.

Ask to Issue Stock in Ill.

Leaf River Valley Telephone Co., Leaf River, has filed an application with the Illinois Commerce Commission for authority to issue $20,000 of its common stock, and $100,000 of its notes secured by a mortgage on all its property.

Correction

The dates listed for the Rocky Mountain Telephone Association convention in the convention calendars appearing in our Apr. 15 and Apr. 22 issues are incorrect. This convention will be held on Sept. 13, 14 and 15, not on Sept. 20, 21 and 22 as shown in the above issues.

Toll Call Fraud Bills Are Proposed in Fla.; Wis.

A bill to penalize bookmakers and others who avoid payment of telephone or telegraph tolls by fraudulent means has been introduced into the Florida legislature by Sen. John E. Mathews Jr.

The measure strengthens a 1959 Florida law which specifies punishments for the fraudulent use of credit cards. The 1959 law sets penalties at a $100 fine, or 30 days in prison, if the amount involved is not over $50. If the amount exceeds $50, penalties rise to a fine of not less than $100, nor more than $500, or one year in prison.

The current proposal would make credit card and telephone toll violations all punishable by a fine of not less than $50, nor more than $500, or one year in prison, or both.

Senator Mathews said that the provision covering telephone and telegraph tolls is not now covered by Florida law. He reported that he had been informed that some Florida bookies were using an electronic device to make long distance calls on which the telephone company is unable to obtain a record.

•

Telephone toll call fraud legislation has also been introduced in the Wisconsin state senate by its judiciary committee.

The bill provides fines of up to $1,000, or a year in jail, or both, for persons who defraud telephone companies by giving false credit card numbers or by using private codes to avoid payment for long distance calls.

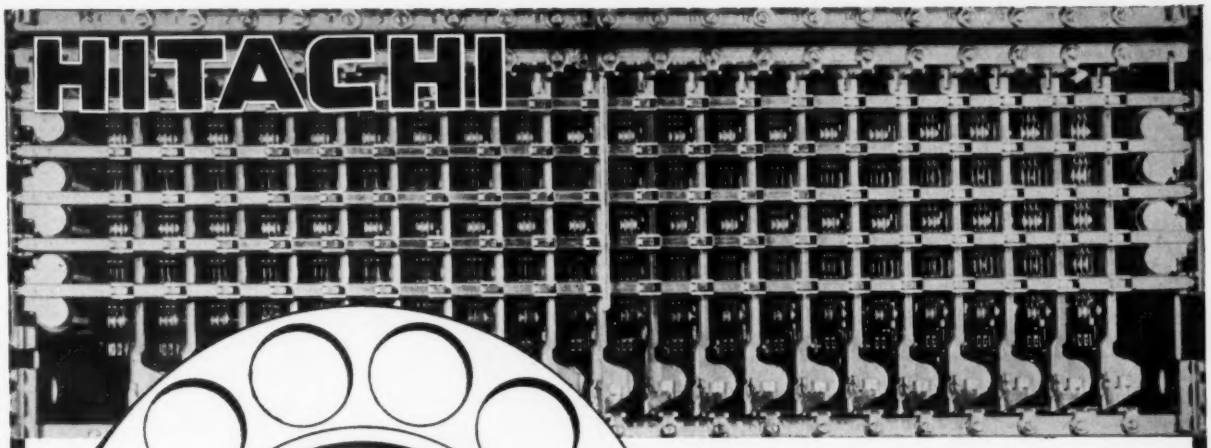
AT&T Prepares Maine Ground Space Satellite Station

Workmen were recently clearing parts of a 1,000-acre tract in western Maine near Rumford—about 75 miles by road from Portland—where the Bell System will install this year the world's largest horn as part of a new experimental space communications ground station.

The horn, a highly sensitive antenna designed and developed by the Bell Telephone Laboratories, will be ready by early next year.

It will do two things: (1) Beam signals to a satellite, which will relay them to Europe; and (2) serve as a giant ear trumpet to scoop up faint signals that are relayed back from Europe by way of the satellite.

The 250-ton steel and aluminum structure will be a rotating antenna—177 feet long, 94 feet high. It will be protected from wind and weather by



For communication systems, call Hitachi

Extensive Hitachi experience with communications systems is reflected in the handsome Type HA-6 telephone set. Its light, compact and sturdy body is tough enough to withstand the shock of being accidentally dropped to the floor. Other outstanding features include high-fidelity transmission and reception, dust-proofed ratchet for ever-smooth dialling action, and clear and commanding bell-tone.

Today's telephone communications authorities are now employing the Crossbar System Automatic Telephone Switchboards in addition to the time-proven "step-by-step" Strowger System. They are finding that the Crossbar System offers many advanced facilities, fewer maintenance problems, minimized failures and longer service life, and that these features are making it ideal for unattended operations. Hitachi has devoted particular attention to the development of the Crossbar System, and consignees continue to report gratifying operating results.

- Telephones and Switchboards
- Carrier-Current Communication Equipment
- Radio and Television Broadcasting Equipment
- Parts for Communication Equipment
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Tokyo Japan

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the largest inflated earthbound structure ever made.

Its spherical cover, or "radome," supported by air pressure, will be 210 feet wide, 161 feet high—about as high as a 13-story building. It will enclose about twice the space of the seating area in Radio City Music Hall. The radome is designed to weather the strongest anticipated gales. Its skin will be 20 tons of synthetic rubber and fabric a sixteenth of an inch thick, which would cover three acres if laid out flat.

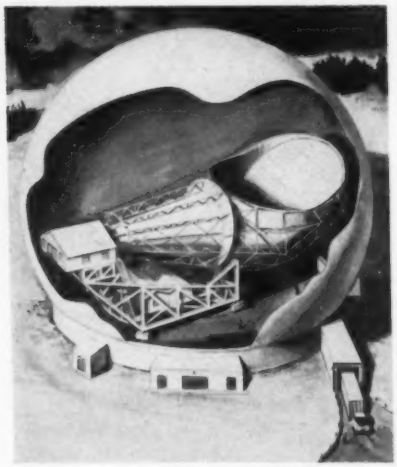
All this will be a major step toward linking the countries of the world with telephone, data and television channels via satellites.

Constituting the most advanced complex of facilities in the space communications field, the 7-million-dollar station will be built on a site about 10 miles northwest of Rumford. Bell engineers and scientists will conduct experiments there.

Rumford's antenna will be an enlarged version of the horn antenna at Holmdel, N. J., which was used successfully for Project Echo. However, the Rumford antenna will provide nine times as much antenna surface.

The Rumford area is said to offer several advantages:

It is far from routes of microwave radio relay stations that operate on the same frequency bands to be used for the satellite experiments. Because signals from satellites are very weak, they are especially vulnerable to interference from signals in the same frequencies, even those considered weak by ordinary standards.



World's biggest horn—the Bell System's antenna built near Rumford, Me., for experiments in overseas satellite communications. Artist's cutaway drawing shows how the antenna will be protected from the weather by inflated "radome" 210 feet across and 161 feet high. People, and even trucks, will enter the dome through air locks, to keep it from deflating. The dome will be made of synthetic rubber and fabric that is "transparent" to radio waves.

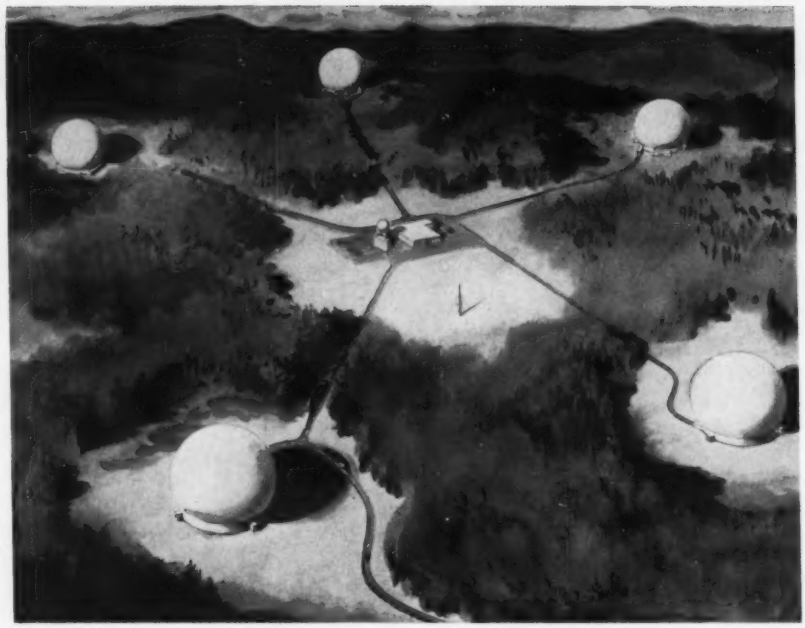
Topographically, the site is well suited. It is a broad, saucer-shaped hill only 900 feet high and ringed by mountains up to 3,800 feet high that help block off stray radio interference from other areas. The mountains are not so high, however, that they will block communications with satellites.

Also, the Rumford site is near a highway. Workers are building an access road from the highway to the site.

In moving to the Rumford site, the Bell System stated it has no intention to abandon the Holmdel, N. J., ground station. Much remains to be done in the space communications field, and basic research will continue at Holmdel.

From Rumford, the company will conduct experimental transatlantic space communications, cooperating with telephone administrations abroad. These will tie in with Bell's plans for a satellite communications system. The company feels such a system is necessary, because of the growing need for overseas communications of all kinds and to furnish alternate routes for reliability.

Space communications systems are a natural supplement to, and extension of, existing common carrier networks. The Bell System handled 4 million overseas telephone calls in 1960; and the volume is growing at the rate of about 20 per cent each year. A satellite system would enable Bell to provide not only telephone, but also high-speed data and live television channels overseas.



Star-like site plan for the Bell System's experimental satellite communications ground station near Rumford, Me., which eventually may look like this. Artist's conception shows a central control building surrounded by five "radome"-covered antennas. The horn antenna to be built this year for satellite communications tests is at lower left. Second antenna will be needed to maintain uninterrupted communications as one satellite "sets" below the horizon and another "rises." Third would take over during maintenance. Fourth and fifth would communicate with some overseas point not linked by the first pair.

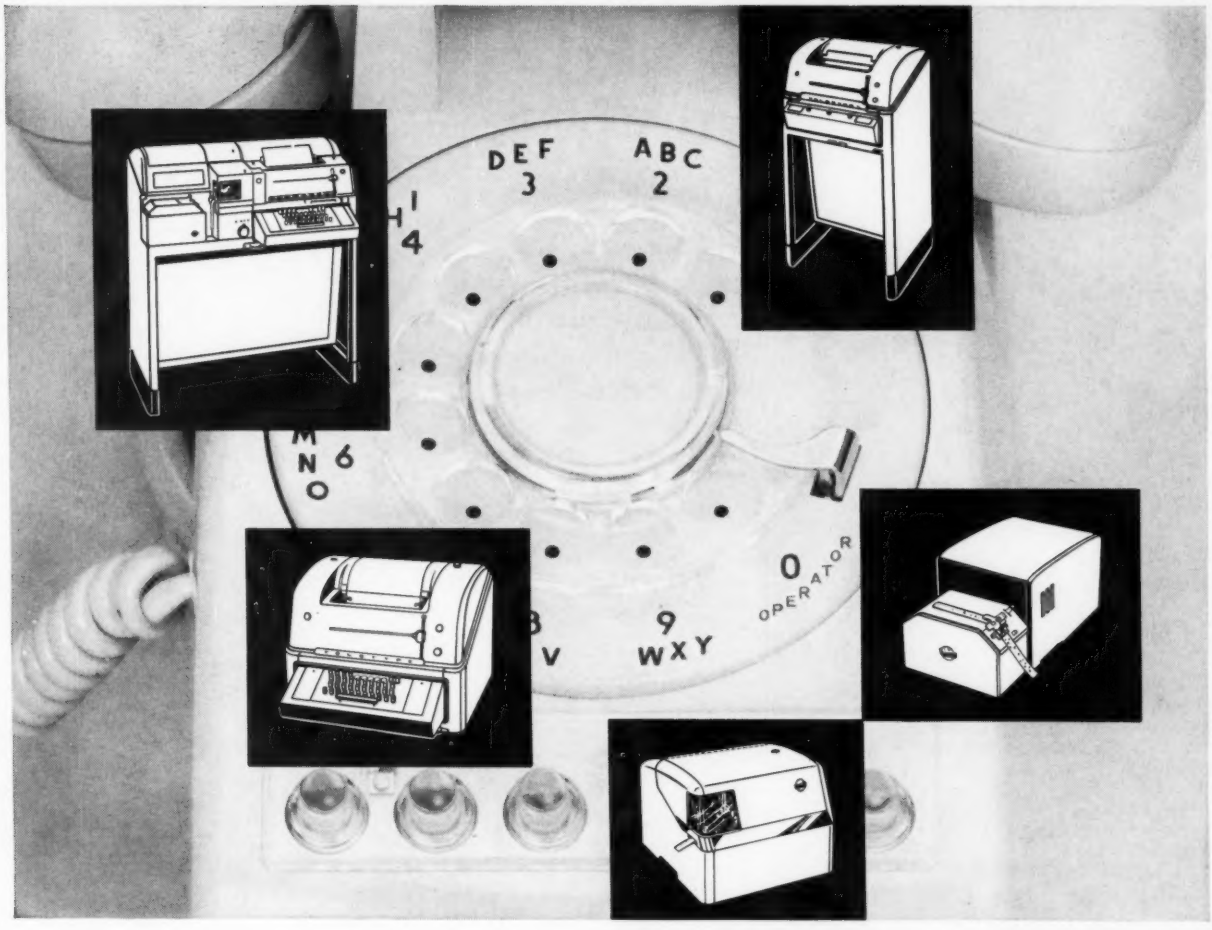
The AT&T Co. has announced that its proposed system would use from 30 to 50 satellites to link, eventually, countries all over the world. It has offered to pay the government the cost of experimental satellites and their launching. Cost of operating the system would be paid by the Bell System and telephone organizations of other countries; just as costs of underseas cables are now shared.

After the Rumford station is used for experiments, the Bell System hopes to use it for commercial traffic.

Early preparations of the site were being handled by about 40 men, working under a local contractor. Local Maine contractors also will have an opportunity to bid for the construction of the building. It is expected, too, that local labor will do the work.

Although specific sites for ground stations in other countries have not been announced, the British plan to have one in the British Isles; and the French and West German communications administrations plan to take part.

AT&T said it has assured the National Aeronautics & Space Administration (NASA) that the Rumford facilities will be made available for NASA's experimental use.



Teletype equipment in Data-Phone service

All Teletype sending and receiving equipment—page printers, tape punches and tape readers—can be used in Data-Phone service, the new Bell System method of data transmission via regular telephone lines.

Data can be speeded over local or long distance lines—to a single destination or to several destinations simultaneously. The data can be received on plain message paper . . . punched paper tape . . . or marginally perforated business forms of almost any size. And always there is a "home record" of what is sent.

Significant paper work simplification and time savings can be achieved in handling accounting and billing information, inventories, payrolls, invoices, sales orders, ticket pick-up and numerous other kinds of business detail. If desired, punched tape can be obtained as a by-product of both sending and receiving operations, for later use with business machines.

A growing number of firms are already using Teletype equipment over Data-Phone circuits. For example, companies that purchase large quantities of airline space place orders by phone, then receive tickets on Teletype printers right in their own offices. With this method, tickets are received faster, messenger service is eliminated, and records for accounting purposes are automatically provided.

Teletype Corporation manufactures page printers and tape units such as the Model 28 equipment illustrated above for the Bell System and others who require the utmost reliability from their data communications facilities.

If you would like to investigate the advantages of Teletype equipment for your business, write to Teletype Corporation, Dept. 65-E, 5555 Touhy Avenue, Skokie, Illinois.

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CORPORATION • SUBSIDIARY OF *Western Electric Company* INC.

EVALUATING GROWTH

Continued from page 26

United States; Population Projections and Economic Assumptions — June 1, 1960."

The population projections by states covered in the above pamphlet were the result of the combined efforts of the Ford Foundation—Resources of the Future, and the Census Bureau.

The resulting population projections by states are for three periods, 1970, 1980, 2000. For each of these three periods, there are three population projections, "Low," "Medium," "High." These nine population projections for each state were also made for two Migration Assumptions, designated No. 1 and No. 2.

A comparison of the 1957 Census Population Estimate, used in this article, and this June 1960 Ford-Census forecast is as follows:

(1) The Migration Assumption No. 1, 1960 forecast, is fairly similar to the 1957 Census estimate used herein. The 1960 Migration Assumption No. 2 is about half that of "Assumption No. 1." There is, therefore, no reasonable state migration comparison with Migration Assumption No. 2.

The total U. S. populations are, of course, the same for the two Migration Assumptions.

(2) Total U. S. Population—1970
1957 Census Estimate: 208,346,000
1960 Ford-Census

Low	200,000,000
Medium	207,000,000
High	221,900,000

(3) Taking the 1957 Census Estimate of state populations for 1970, used herein as a base, the recent 1960 Ford-Census "Medium" state estimates for 1970:

are less than 5 per cent higher for 18 states.

are less than 5 per cent lower for 13 states.

There are variations of 2 per cent or less for 13 states.

Table 3.—CHARACTERISTICS OF HOUSING FOR CENSUS TRACTS, BY BLOCKS: 1950—Con.

Census tract	Block	All dwelling units by occupancy and tenure: Total	Owner occupied	Renter occupied	Vacant non-seasonal not dilap. for rent or sale	Other vacant and non-resident	All dwelling units by condition and plumbing facilities: Number reporting	No private bath or dilap.	No running water or dilap.	Occupied dwelling units: Total	Persons per room: Number reporting	1.51 or more	Occupied by non-white	Contract monthly rent[1]: Number reporting	Average monthly rent (dollars)	Value[1] of one-dwelling-unit structures: Number reporting	Average value (dollars)
(A)63	51	28	21	7			27	2	1	28	28		1	7	3414	19	8705
	52	33	28	4		1	33			32	32			4	4025	27	10481
	53	54	40	12		2	54			52	52			12	3950	35	8851
	54	53	35	17	1		53	1	1	52	52			17	3935	30	7886
	55	26	21	5			26			26	26			5	4440	21	10333
	56	26	23	3			25			26	26			3	3566	23	8456
	57	58	51	6	1		57			57	54		1	5	4160	48	10020
	58	120	60	52	8	5	119	6	6	112	111	1		54	4018	47	9010
	59	71	57	13	1		71	3	3	70	70			12	3608	56	10107
	60	12	12				12			12	12					12	8958
	61	71	54	17			70	1		71	71			17	5594	51	9168
	62	61	45	16			61			61	60	2		16	4918	43	10111
	63	22	16	7		1	22			21	21			5	4900	16	9281
	64	19	12	6		1	18	2		18	17			5	4340	9	9111
	65	19	13	6			19			19	19			6	4350	10	9160
	66	31	11	20			31			31	31	1	2	19	3336	6	10383
	67	31	17	13	1		31	2	2	30	30	1		13	4846	12	8791
	68	30	22	8			30			30	30			8	4437	21	8452
	69	41	34	6	1		41			40	40		1	5	3940	31	8574
	70	36	27	8	1		36			35	35	1	2	9	4444	21	7833
(B)64	3	13	8	5			13	2	1	13	13			5	4580	8	10400
	4	31	14	17			31			31	31			17	6505	14	10607
	5	4	2	1		1	4			3	3			1		2	
	7	18	7	4	1		12			11	11			4	2625	7	7071
	8	80	15	5			20			20	20			5	4220	15	7560
	9	30	2	27	1		30	1		29	29			28	4039		
	10	14	5	9			14			14	14			9	4777	2	
	11	48	13	33	1	5	48	2		36	36	2		24	6404	8	8250
	12	53	43	10			53	8		53	53		2		4510	41	7417
	13	37	31	6			37			37	37		1		4266	31	8461
		75	61	13			75				75	1				58	
			33	2			48									47	
																14	

Figure 3

APPENDIX

A. Data Contained in tables included in Appendix.

B. Data available from Census data in libraries.

	Population Data				
	1940	1950	1960	1965	1970
A. Table I — Census Actual					
Count vs. Census Estimate			X		
Table II — By States — Actual	X	X	X		
By States — Census Estimate				X	X
B. By Counties	X	X	X		
By Cities, Towns	X	X	X[1]		

[1] **Preliminary Census Reports available now; final reports shortly.**

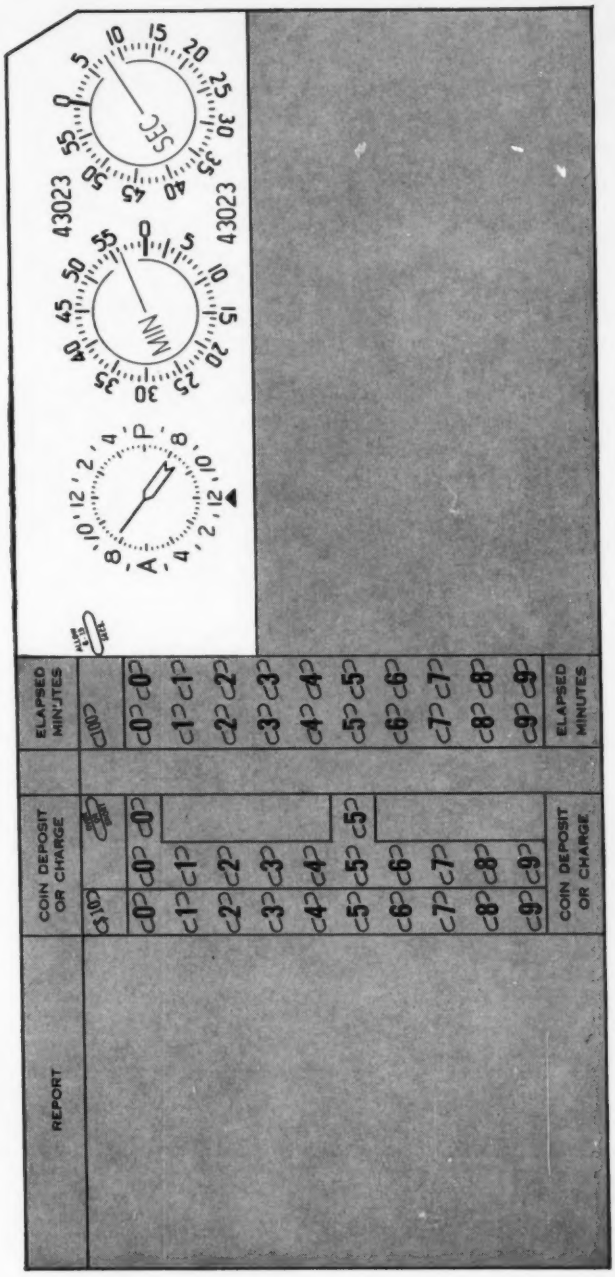
(Continued on page 44)

CALCULAGRAPH IS READY FOR MARK SENSING NOW!

If you are planning to use mark sense toll tickets now (or later) be sure your Calculagraphs are readily adaptable. Remember to do these three things now—

1. When ordering new Calculagraphs specify "set back" handles—this feature clears the way for mark sense toll tickets (or ANY SIZE ticket in fact).
2. Plan a program of modification of Calculagraphs now on your switchboard.
3. If you are still using the old round-type Calculagraphs, consider the economics of replacing them with the new space-saving Model 33 that will include all the latest improvements—set back handle, color-coded handles for easier operation and 60-minute dial to assure 100% accuracy on all calls.

If your analysis shows that mark sensing makes sense economically, or your present system requires a larger size ticket, consult your Calculagraph distributor today. Ask him about the set back handle feature as well as other modernization features of the NEW Calculagraph.



CALCULAGRAPH Company

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Telephone: HUmboldt 2-0213

Manufacturers of Elapsed Time Recorders for over 65 years

People Per Household

	1900	1930	1940	1950	1960
A. Table III — by States	X	X	X	X	
B. By Counties		X	X	X	(3)
By Cities		X	X	(4)	(4)

(3)Most final Census counts now available.
(4)Census Tracts — 1950 — Number of Households for 62 cities. (See *Fig. 3.*)
— 1960 — Number of Households for 175 cities. (See *Fig. 3.*)

% Telephone Usage

A. Table III — by States 1952, 1954, 1956, 1958, 1959

Comparison of Final 1960 Census Count of Population by States *vs* 1960 Forecast of Population of States Made by Census Bureau, Issued August 1957

State	Census Population (Thousands) 1960 Final Count	1957 Forecast	% Variations Forecast From Count
Alabama	3,267	3,165	— 3.1
Alaska	226	(48 states only)	
Arizona	1,302	1,268	— 2.6
Arkansas	1,786	1,670	— 6.5
California	15,717	15,273	— 2.8
Colorado	1,754	1,762	+ 0.5
Connecticut	2,535	2,409	— 5.0
Delaware	446	439	— 1.6
District of Columbia	764	908	+15.8
Georgia	3,943	3,861	— 2.1
Hawaii	633	...	...
Florida	4,952	4,371	—11.7
Idaho	667	638	— 4.3
Illinois	10,181	9,958	— 2.2
Indiana	4,662	4,771	+ 2.3
Iowa	2,758	2,734	— 0.9
Kansas	2,179	2,206	— 1.2
Kentucky	3,038	3,076	+ 1.3
Louisiana	3,257	3,184	— 2.2
Maine	969	897	— 7.4
Maryland	3,101	3,140	+ 1.3
Massachusetts	5,149	4,967	— 3.5
Michigan	7,823	8,355	+ 6.4
Minnesota	3,414	3,415	0
Mississippi	2,178	2,082	— 4.4

State	Census Population (Thousands) 1960 Final Count	1957 Forecast	% Variations Forecast From Count
Missouri	4,320	4,456	+ 3.0
Montana	675	671	— 0.6
Nebraska	1,411	1,465	+ 3.8
Nevada	285	310	+ 8.7
New Hampshire	607	582	— 4.1
New Jersey	6,067	5,849	— 3.6
New Mexico	951	896	— 5.8
New York	16,782	17,342	+ 3.3
North Carolina	4,556	4,609	+ 1.6
North Dakota	632	672	+ 6.3
Ohio	9,706	10,035	+ 3.3
Oklahoma	2,328	2,181	— 6.3
Oregon	1,769	1,863	+ 5.3
Pennsylvania	11,319	11,412	+ 0.8
Rhode Island	859	838	— 2.4
South Carolina	2,383	2,482	+ 4.2
South Dakota	681	718	+ 5.4
Tennessee	3,567	3,558	— 0.3
Texas	9,580	9,724	+ 1.5
Utah	891	909	+ 2.0
Vermont	390	365	— 6.4
Virginia	3,967	3,806	— 4.0
Washington	2,853	2,849	— 0.1
West Virginia	1,860	1,982	+ 1.2
Wisconsin	3,952	3,999	+ 1.2
Wyoming	330	333	+ 0.9

Appendix Table I

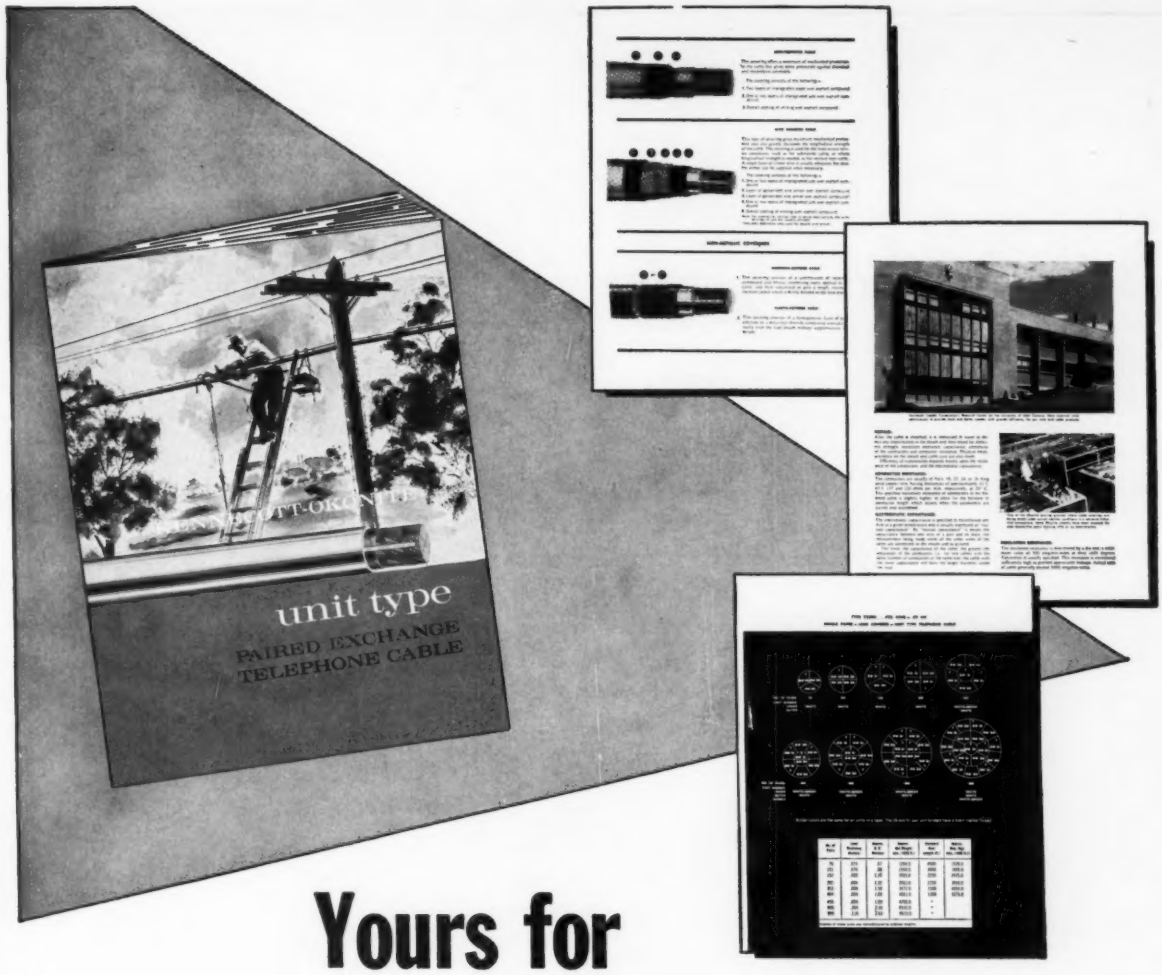
Population of States in Thousands. Source—1940-1950 U. S. Census; 1960—Taken from 1960 Census Preliminary Count; 1965 and 1970—Current Population Reports and Estimates of Census Bureau

	Maine	N. Hamp.	Vt.	Mass.	R. I.	Conn.	N. Y.	N. J.	Pa.
1940	847	492	359	4,317	713	1,709	13,479	4,160	9,900
1950	914	533	378	4,691	792	2,007	14,830	4,835	10,490
1960	964	600	387	5,120	845	2,510	16,597	6,019	11,218
1965	897	612	362	5,187	862	2,622	18,628	6,371	11,917
1970	916	648	369	5,471	896	2,859	20,023	6,942	12,500

	Ohio	Ind.	Ill.	Mich.	Wis.	Mo.	Minn.	Iowa	N. D.
1940	6,908	3,428	7,897	5,256	3,138	3,785	2,792	2,538	642
1950	7,947	3,934	8,712	6,372	3,435	3,955	2,982	2,621	620
1960	9,636	4,639	9,982	7,793	3,926	4,307	3,393	2,736	627
1965	11,109	5,219	10,613	9,380	4,289	4,696	3,626	2,794	692
1970	12,250	5,715	11,353	10,483	4,606	4,957	3,856	2,874	710

	S. D.	Neb.	Kan.	Del.	Md.	D. C.	Va.	W. Va.	N. C.
1940	643	1,316	1,801	267	1,821	663	2,678	1,902	3,572
1950	658	1,326	1,905	318	2,343	802	3,319	2,006	4,062
1960	677	1,399	2,161	443	3,073	747	3,899	1,847	4,524
1965	746	1,526	2,346	525	3,538	962	4,056	1,985	4,863
1970	776	1,590	2,498	593	3,970	1,025	4,326	2,015	5,149

(Continued on page 46)



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Continued from page 44

	S. C.	Ga.	Fla.	Ky.	Tenn.	Ala.	Miss.	Ark.	La.
1940	1,900	3,124	1,897	2,846	2,916	2,833	2,184	1,949	2,364
1950	2,117	3,445	2,771	2,945	3,292	3,062	2,179	1,910	2,684
1960	2,358	3,917	4,893	3,012	3,532	3,244	2,162	1,772	3,231
1965	2,641	4,044	5,131	3,120	3,702	3,208	2,028	1,540	3,428
1970	2,809	4,249	5,912	3,172	3,883	3,273	1,999	1,435	3,695

	Okla.	Tex.	Mont.	Ida.	Wyo.	Col.	N. M.	Ariz.	Utah
1940	2,336	6,415	559	525	251	1,123	532	499	550
1950	2,233	7,711	591	589	291	1,325	681	750	689
1960	2,300	9,494	668	664	327	1,736	943	1,282	886
1965	2,141	10,697	711	666	354	1,974	1,004	1,528	1,024
1970	2,112	11,752	755	700	379	2,197	1,126	1,802	1,151

	Nev.	Wash.	Ore.	Cal.
1940	110	1,736	1,090	6,907
1950	160	2,379	1,521	10,586
1960	281	2,824	1,756	15,537
1965	382	3,123	2,067	17,661
1970	453	3,459	2,317	20,296

Appendix Table II

	People Per Household — Actual From Census Report				% Households With Telephone Service — Actual From Statistics				
	1900	1930	1940	1950	1952	1954	1956	1958	1959
Maine	4.25	4.03	3.85	3.6	62	63	63	70	71
New Hampshire	4.2	3.91	3.66	3.44	67	68	71	77	79
Vermont	4.25	4.04	3.86	3.67	63	64	66	76	76
Massachusetts	4.55	4.15	3.84	3.59	78	81	85	92	94
Rhode Island	4.57	4.16	3.79	3.52	69	72	75	79	82
Connecticut	4.47	4.13	3.79	3.51	87	91	95	99	99
New York	4.44	3.95	3.67	3.42	74	80	85	90	89
New Jersey	4.55	4.1	3.77	3.51	75	82	88	91	93
Pennsylvania	4.77	4.3	3.93	3.6	70	76	80	86	85
Ohio	4.42	3.91	3.63	3.43	78	81	84	84	83
Indiana	4.40	3.84	3.56	3.37	69	72	74	79	78
Illinois	4.66	3.95	3.59	3.37	70	72	78	84	84
Michigan	4.42	4.1	3.75	3.55	79	82	85	83	81
Wisconsin	4.86	4.13	3.79	3.54	71	73	78	81	81
Missouri	4.76	3.87	3.54	3.30	64	67	72	76	76
Minnesota	5.12	4.23	3.82	3.53	76	80	83	86	87
Iowa	4.64	3.89	3.61	3.35	79	82	84	88	88
North Dakota	4.92	4.70	4.20	3.83	55	60	62	66	69
South Dakota	4.78	4.30	3.87	3.57	61	64	66	68	70
Nebraska	4.82	4.02	3.63	3.36	73	77	80	81	83
Kansas	4.57	3.86	3.51	3.24	73	77	80	81	82
Delaware	4.74	4.03	3.75	3.53	78	82	88	83	83
Maryland	4.92	4.23	3.90	3.66	65	70	76	78	80
District of Columbia	4.89	3.86	3.81	3.57	93	87	83	86	84
Virginia	5.08	4.58	4.25	3.92	50	55	60	66	68
West Virginia	5.15	4.62	4.26	3.85	45	47	50	59	61
North Carolina	5.12	4.92	4.51	4.08	38	42	46	52	56
South Carolina	4.97	4.74	4.37	4.10	33	37	43	49	50
Georgia	4.85	4.46	4.15	3.87	43	48	52	59	60
Florida	4.52	3.90	3.63	3.37	48	52	63	71	74
Kentucky	4.92	4.29	4.07	3.77	41	45	49	54	56
Tennessee	5.10	4.35	4.06	3.77	50	53	57	64	65
Alabama	4.87	4.46	4.20	3.89	38	41	45	54	56
Mississippi	4.87	4.25	4.07	3.92	27	30	34	40	42
Arkansas	4.95	4.22	3.93	3.64	31	33	36	46	49
Louisiana	4.85	4.33	3.98	3.70	49	53	61	68	69
Oklahoma	4.82	4.24	3.82	3.36	57	61	65	72	74
Texas	5.17	4.22	3.81	3.52	55	58	64	67	67
Montana	4.34	3.96	3.48	3.35	56	61	68	73	76
Wyoming	4.65	3.97	3.58	3.46	60	64	67	71	72
Idaho	4.38	4.12	3.67	3.49	58	60	63	72	75
Colorado	4.26	3.88	3.54	3.38	73	76	80	79	81
New Mexico	4.24	4.27	4.10	3.85	38	44	51	57	59
Arizona	4.10	4.11	3.79	3.57	47	53	59	56	59
Utah	4.95	4.30	3.93	3.67	71	76	78	79	80
Nevada	3.82	3.64	3.23	3.20	58	66	67	56	59
Washington	4.58	3.70	3.21	3.22	70	72	75	80	80
Oregon	4.56	3.59	3.22	3.17	64	65	69	73	72
California	4.34	3.53	3.22	3.18	73	76	82	85	83

Appendix Table III

Wis. Bell Agrees to Reduce Certain Tariffs

The Wisconsin Public Service Commission has announced that negotiations with the Wisconsin (Bell) Telephone Co. have resulted in the company's rates being reduced by $1,785,000. Basic monthly rates, however, were not changed.

One phase of the new rates, however, affects all the 170 telephone companies in Wisconsin. This is the reduction in intrastate long distance rates as follows:

Long distance day rates were reduced one cent a minute in a distance of 50 to 55 miles, and two cents a minute for 60 to 292 miles.

Night rates were reduced one cent a minute in the 40 to 55-mile range and one cent a minute in the 60 to 392-mile range.

The largest single reductions will be $576,000 in the area around Milwaukee. This will result from further integration of Waukesha, Menomonee Falls, Pewaukee, Hartland and Sussex into the Milwaukee toll-free area.

Charge for installation of color telephones was cut from $7.50 to $5.00. This reduces rates by $138,000.

The offering of extended area service between various nearby communities will result in a $106,000 reduction.

Enlarging the base rate areas in Milwaukee and 14 other cities will result in a $55,000 reduction in toll revenues.

Reductions in rates for private intercity telephone lines maintained by business organizations will total $123,500.

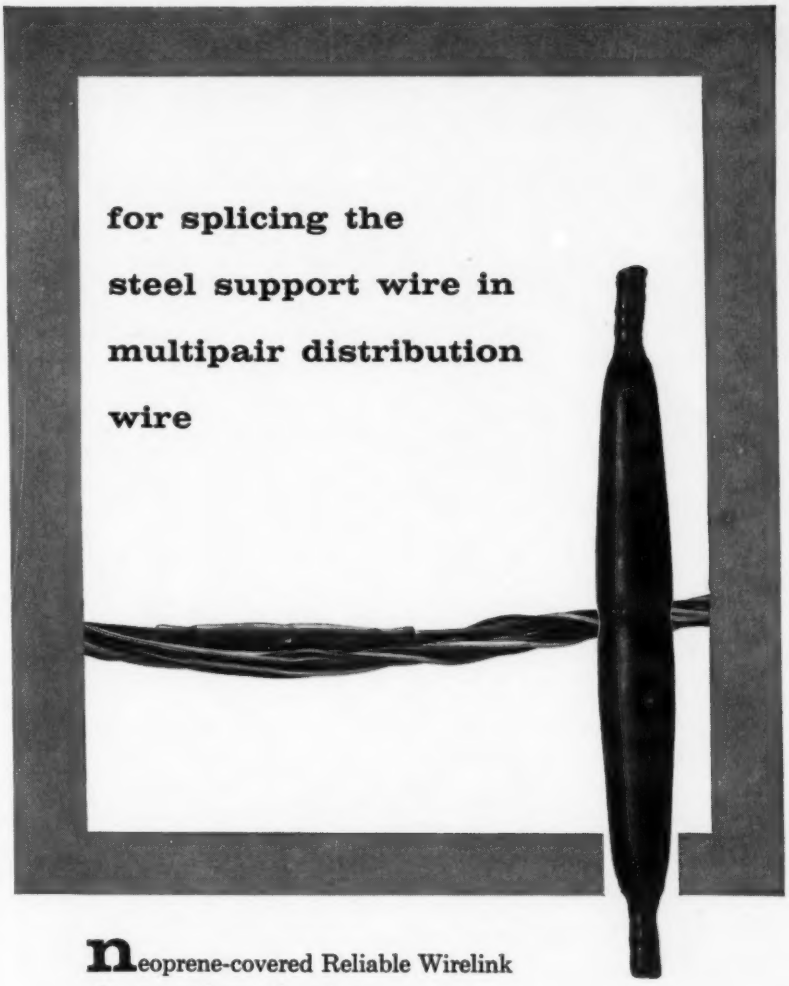
Henry J. O'Leary of the commission staff said that some of the reductions would go into effect immediately, with the rest within the year as mechanical improvements are made.

File Oregon Financing Plans

The California-Pacific Utilities Co., San Francisco, Cal., has filed an application with the Oregon Public Utility Commissioner for authority to sell 2 million dollars in Series I, 5 per cent first mortgage bonds to pay off short-term loans used for construction and to finance part of a 3.6 million-dollar program reported as scheduled for this year. The company owns and operates telephone, electric and gas facilities in Oregon, California, Nevada, Idaho, Wyoming, Utah, and Arizona.

OK Permanent Rates in Kan.

The Mid-Kansas Telephone Co. Inc., Sterling, has been granted permission by the Kansas Corporation Commission to make interim dial rates at four exchanges permanent (TELEPHONY, May 16, 1959). Exchanges involved are Belpre, Hesston, Hudson and Macksville.



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Sixteen Telephone Loans Authorized by REA

MORE THAN 8,700 telephone subscribers in 15 states will benefit from 16 telephone loans approved during the week of Apr. 17 by the Rural Electrification Administration, as follows:

Pineland Telephone Cooperative, Metter, Ga.; $283,000; Apr. 17.

These and funds from prior loans will be used by the borrower to help serve 438 new subscribers in its Metter and Cobbtown exchanges. Facilities required will include expanded central office facilities in both exchanges and system improvements which will permit a higher type of service for existing subscribers in the two exchange areas. In addition, a portion of the funds will be used to provide service without toll charge between the Metter and Twin City exchanges. REA loans to this borrower will aid in enabling it to bring new and improved service to 3,481 subscribers. The cooperative is presently furnishing dial service to approximately 2,730 subscribers through its nine exchanges.

Consolidated Telephone Co., Brainerd, Minn.; $120,000; Apr. 17.

This loan will assist in furnishing initial service to 395 subscribers in the present service area, in replacing general funds which the borrower has used on previously approved construction, and in completing the authorized system.

REA loans approved to this borrower will help it to bring new and improved service to 2,269 subscribers. Approximately 1,750 subscribers are now receiving dial service through the system's eight exchanges.

•

Estacada (Ore.) Telephone & Telegraph Co.; $45,000; Apr. 17.

Funds will help to finance the installation of direct distance dialing equipment. This will improve subscriber service throughout the company's system. The two REA loans to this borrower will aid in making possible new and improved service for 1,310 subscribers. Approximately 1,225 subscribers now receive dial service through the Estacada exchange.

•

Wickes (Ark.) Telephone Co.; $344,000; Apr. 18.

This loan will assist in furnishing initial service to 442 subscribers in Oklahoma. No telephone service has previously been available in these areas.

The borrower proposes to construct new dial central offices at Battiest and Smithville, Okla. REA loans approved to this borrower will aid in making possible new and improved service to 1,421 subscribers. The system will consist of five exchanges in Arkansas and two in Oklahoma.

•

Wikstrom Telephone Co., Karlstad, Minn.; $610,000; Apr. 18.

These funds will help to furnish initial service to 506 subscribers and to improve service for 456 subscribers. As a nucleus for the new service, the borrower proposes to acquire the following companies which now furnish magneto service to the existing subscribers: Peoples Cooperative Telephone Co., consisting of exchanges at Roosevelt and Williams; Newfolden Central Telephone Co., with an exchange at Newfolden; and Farmers & Village Switchboard Co., with one exchange at Holt.

The borrower plans to replace the four acquired switchboards with new dial central offices. REA loans to this borrower will aid it to furnish new and improved service to 2,309 subscribers. Six of the proposed 10 exchanges are now furnishing dial service to approximately 1,020 subscribers.

•

Kingdom Telephone Co., Auxvasse, Mo.; $330,000; Apr. 18.

Funds will assist in furnishing initial service for 225 subscribers and in improving service for 288 subscribers. The borrower, a cooperative, plans to expand its operating areas in order to serve the additional subscribers.

As a nucleus for the new service, the borrower proposes to acquire with its own funds the magneto switchboards and toll line only from three small mutuals in the expanded service area. These facilities will be retired, and the companies will dismantle their own lines when dial service is available from the borrower. Dial central offices will be constructed at Big Springs and Rhineland. The borrower is considering service without toll charge between these two new exchange areas.

REA loans to the borrower will help make new and improved service possible to 1,689 subscribers. Three of the proposed five exchanges are now fur-

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nishing dial service to approximately 1,030 subscribers.

•

Venus (Pa.) Telephone Association; $425,000; Apr. 18.

These funds will aid this new borrower of REA funds, a commercial corporation, to improve service for its 415 subscribers and to furnish initial service to 341 subscribers. The Venus association now furnishes magneto service to its subscribers.

The borrower proposes to construct a new dial central-commercial office building in Venus. A small portion of these funds will be used to refinance the borrower's existing indebtedness.

Robert Niederriter is president and Albert E. Mahle is manager of the Venus association.

•

Fairwater-Brandon-Alto Telephone Co., Brandon, Wis.; $388,000; Apr. 18.

This new borrower of REA funds, a commercial corporation, plans to improve service for its 627 subscribers and for 162 subscribers of the Eastern Alto Telephone Co. which it plans to acquire. The 789 subscribers now receive common battery service through the Brandon exchange and magneto through the Alto central office. In addition, the borrower proposes to furnish initial service to 144 subscribers in its area.

New construction will include a dial central office at Brandon to serve both communities. The borrower proposes to continue renting commercial office space in Brandon. Plans also are under consideration for service without toll charge between the new Brandon exchange and the nearby town of Waupun.

Harris R. Johnson is president and R. L. Austin is manager of the Fairwater-Brandon-Alto Telephone Co.

•

Union Telephone Co., Mountain View, Wyo.; $124,000; Apr. 18.

Funds will help provide initial service for 180 subscribers in Wyoming and Utah. The new territory in Wyoming will be served from the borrower's present Mountain View exchange, and the new subscribers in Utah will be connected to the borrower's existing Dutch John exchange.

These funds will assist the borrower to acquire the toll carrier terminal equipment located in its Mountain View exchange. These facilities are now owned by the Mountain States Telephone & Telegraph Co. In addition, the borrower proposes to install mobile dial radio equipment for system mainte-

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nance, and to serve nine of the new subscribers provided for in this loan.

REA loans to this company will aid it to bring new and improved service to 844 subscribers.

•

Siskiyou Telephone Co., Fort Jones, Cal.; $200,000; Apr. 20.

This loan will help to complete the system authorized under prior loans, serve 30 new subscribers, and provide communications service to a proposed Federal Aviation Agency installation within the borrower's operating area. REA loans to this borrower will help bring new and improved service to 1,688 subscribers. The four exchanges of the system are now furnishing dial service to approximately 1,325 subscribers.

•

Tuolumne (Cal.) Telephone Co.; $85,000; Apr. 20.

Funds will aid the company to furnish initial service to 70 subscribers located mainly in Nevada. A few of the subscribers will be in California. The company proposes to construct a new dial central office at Dyer, Nev., to serve the additional subscribers.

REA loans to this borrower will help it to bring new and improved service to 744 subscribers. The Tuolumne exchange is now furnishing dial service to approximately 515 subscribers.

•

Cherokee Telephone Co., Donalsonville, Ga.; $140,000; Apr. 20.

The greater portion of these funds will be used by the borrower to assist in completing its authorized system and to make improvements which will result in a higher grade of service for all of the subscribers.

REA loans to this borrower will help make possible new and improved service to 1,000 subscribers. The four exchanges of the system are now furnishing dial service to approximately 700 subscribers.

•

Thacker-Grigsby Telephone Co., Hindman, Ky.; $237,000; Apr. 20.

Proceeds will aid in serving 458 new subscribers and in improving service for 12 subscribers. The borrower has recently acquired with its own funds three miles of subscriber-owned line serving the 12 existing subscribers. A new dial office building will be constructed at Topmost to serve 266 of the additional subscribers, and the dial facilities in the borrower's Hindman and Mousie exchanges will be expanded to handle the remaining 204.

REA loans to this company will aid it to bring new and improved service to 1,425 subscribers. Three of the proposed four exchanges are now furnishing dial service to approximately 890 subscribers.

•

Northern Kansas Telephone Co., Ottawa; $895,000; Apr. 21.

This loan will help to furnish initial service to 283 subscribers, improve service for 163 subscribers, and complete the authorized system. The borrower has recently acquired two companies with its own funds: Farmers District Mutual Telephone Co., Alta Vista, and the Earlton Mutual Telephone Exchange. In addition, the borrower has been directed by the Kansas Corporation Commission to serve the territories formerly served by the Bush City Telephone Co. and the Farlinville Telephone Company.

The Bush City, Earlton and Farlinville communities, in which the existing subscribers are located, will be served from the borrower's present Parker, Thayer and Mound City exchanges. No REA loan funds will be spent in the Alta Vista exchange area. The borrower proposes to convert these magneto facilities, now serving 402 subscribers, to common battery service with its own funds. Provision is made in the loan to install mobile dial radiotelephone facilities to serve 39 subscribers, and for system maintenance.

REA loans to the Northern Kansas company, will aid in making possible new and improved service to 10,657 subscribers. Twenty of the 33 proposed dial exchanges now serve approximately 5,425 subscribers. In addition, the borrower will furnish common battery service through its Alta Vista exchange to 402 subscribers.

•

Modern Telephone Co., Springfield, Mo.; $1,296,000; Apr. 21.

Funds will assist in serving 1,662 new subscribers and in improving service for 194 existing subscribers. Those who will receive improved service under this loan now receive magneto and common battery service from the Summersville Telephone Exchange which the company expects to acquire. The borrower proposes to construct new dial central offices at Summersville to serve that area; and at Caulifield, Hide-A-Way, Theodosia, Vanzant and Wasola to serve other areas within and adjacent to its six existing exchanges.

REA loans to this borrower will help bring new and improved service to 4,271 subscribers. Six of the proposed 12 ex-

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changes of the system are now furnishing dial service to approximately 1,775 subscribers.

•

Palmetto Rural Telephone Cooperative, Walterboro, S. C.; $1,103,000; Apr. 21.

This loan will help to provide initial service to 1,249 subscribers within the present service area, make system improvements which will permit a higher grade of telephone service to existing subscribers, and complete the authorized system.

REA loans to the Palmetto cooperative will aid in bringing new and improved service to 2,712 subscribers. The five exchanges of the system are now furnishing dial service to approximately 1,225 subscribers.

Seely Is Chairman; Kingman President, N. Y. Company

William A. Seely, president of the Chenango & Unadilla Telephone Corp. of Norwich, N. Y., on Apr. 26 was named chairman of the board and William S. Kingman, executive vice president for four years, was chosen president by the board of directors at its annual meeting. Otis A. Thompson, board chairman, was appointed chairman of the executive committee.

Mr. Seely originally went to Norwich in June 1920 as general manager of the Marquis Telephone Company, predecessor of the Chenango & Unadilla company and has been associated with the C & U since its inception, holding the positions of general manager, vice president and general manager, and president. Mr. Seely will complete 55 years of service in the telephone industry on June 14.

Mr. Kingman has been executive vice president of the C & U company since 1957. He became associated with C & U on June 1, 1948 as assistant to the president. In 1950, he was elected treasurer and was elected vice president and treasurer in 1956, being named executive vice president of the company in 1957.

Other officers re-elected at the organization meeting of the board of directors are: David F. Lee, vice president, Leon L. Carter, vice president and consultant, Carl E. Purple, treasurer, Charles Gallagher, secretary and general counsel, Cyrus M. Higley and Robert A. Hall, assistant treasurers and Clark F. Metzgar, assistant secretary.

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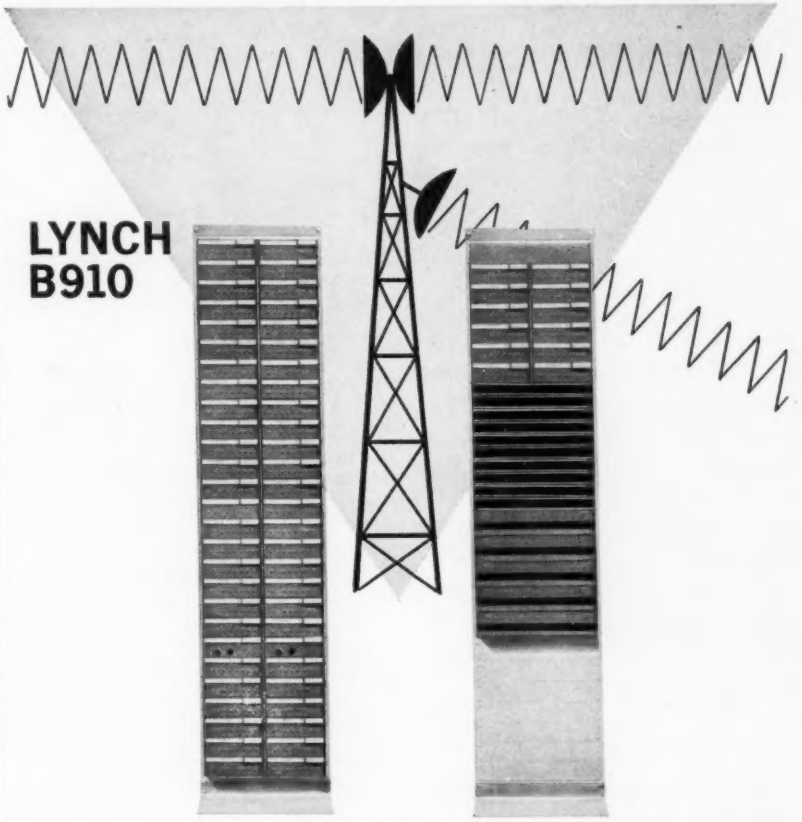

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News on New Products

EDUCATIONAL TV MICROWAVE SYSTEM — A microwave system for closed-circuit transmission of educational TV (ETV) programs has been developed and announced by Collins Radio Co.'s Texas Division.

The microwave system operates in the radio frequencies recently authorized by the Federal Communications Commission for educational institutions.

Collins announced the microwave system in a new brochure, which stated that microwave is relatively unsusceptible to severe weather damage and offers excellent fidelity as well as versatility. Collins ETV microwave system provides circuits for both video and aural signals and can transmit a few miles or hundreds of miles. Multiple channel systems are available for transmitting two or more ETV programs simultaneously.

Educational institutions may own and operate their own ETV microwave systems or lease from a common carrier service.

Collins, the brochure stated, offers complete microwave service from initial planning and sight survey through installation and final checkup. Request NP1615.

•

MOBILE TELEPHONE DASH UNIT —Lenkurt Electric Co., Inc. reports that it is now producing a new streamlined dash unit for its Mobiltel mobile radiotelephone systems.

The dawn gray unit is made of molded high-impact Cyclac plastic and weighs 2 pound 6 ounces—less than half as much as the cast aluminum and sheet steel version it replaces.

Lenkurt states that easily attached connecting brackets permit mounting the unit on dashboards or other surfaces, in land, sea, and air vehicles.

In addition to its new look, the unit is described as having been improved mechanically. It now features a type of indicator lamp similar to those used in key set telephones. The bulb is replaceable from the front. Installation of the unit has been simplified with a new snap-lug connection arrangement, eliminating the former junction box without adding connectors.

The dash unit is an integral part of the system, and is not for sale as a separate item. Request NP1616.

•

MULTIPLEXING SYSTEM — Also available from Lenkurt is a 600-channel

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Chicago 5, Ill.

Please have the manufacturer send me without obligation the literature indicated by the following numbers:

NP1615_____; NP1616_____; NP1617_____; NP1618_____;

NP1619_____; NP1620_____.

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Company.....

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Town and State.....

5/6/61

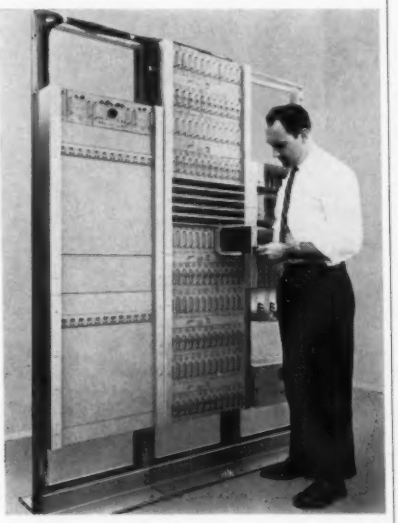
multiplexing system for long-haul use on microwave radio.

The new transistorized system is designated Type 46A, and is reported to provide high-grade voice circuits on as many as seven tandem links totaling up to 4,000 miles in length. It coordinates on an end-to-end basis with Western Electric type "L" multiplexing equipment.

With full 600-channel system loading, Type 46A's power-handling capability is said to be more than twice as great as that recommended by the International Consultative Committee on Telegraphy and Telephony (CCITT).

Total per-channel noise and crosstalk for a single link are described as not exceeding 23 dba more than 1 per cent of the busy hour, with system loading of 75 per cent voice and signaling, 17 per cent telegraph, and 8 per cent SAGE data.

As a result, type 46A can accommodate large amounts of voice, telegraph,



facsimile, and SAGE and other forms of data.

Lenkurt says that in other respects, the system also exceeds or meets CCITT recommendations.

A 600-channel terminal consumes about 1,500 watts and will mount in as few as twelve 11-foot racks, including spare equipment.

The system can be arranged to handle any number of channels—from as few as 12 up to the full 600, in increments of 12, the company says.

Performance features include channel harmonic distortion no greater than 1 per cent (40 db below a zero reference test zone), and built-in drop-to-drop frequency stability of less than ±1 cycle over a three-month period on the worst channel. Synchronizing equipment

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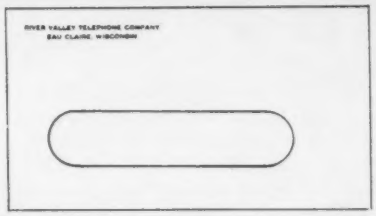

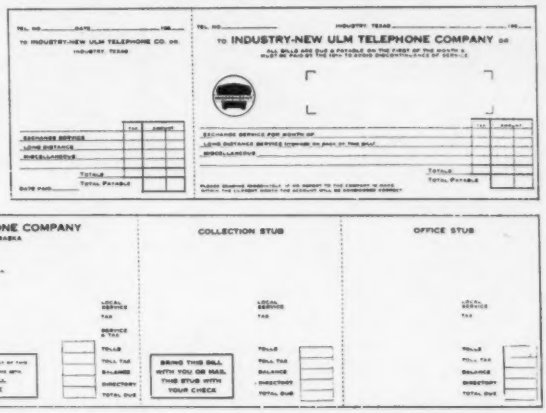

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is available as an option. Request NP-1617.

•

EMERGENCY LIGHTING UNIT — A new automatic emergency lighting unit, which is claimed to be capable of brightly illuminating 10,000 to 25,000 square feet continuously for three to eight hours or more, has been introduced by Exide Industrial Marketing Division of The Electric Storage Battery Co.

Largest model in Exide's line of battery-powered emergency lighting unit equipment, the new 100-ampere-hour Model E Lightguard is said not only to operate automatically and instantaneously when normal power fails but also to automatically recharge itself in the shortest possible time—and stay ready —for the next blackout. It also prevents the battery from being overcharged.

The storage battery is equipped with three colored pilot-ball indicators that tell its approximate state of charge. The pilot balls and the electrolyte level can be seen at a glance through the transparent plastic battery container.

The front control panel of the Model E has a spring-return test switch, a ready switch and two indicator lights that show when the unit is ready to operate and when the battery is on high-rate charge.

The Model E has two 25-watt PAR 46 sealed-beam lamps, adjustable both horizontally and vertically, mounted on the case of the self-contained unit. Up

to three additional lamps can be connected remotely to light adjacent areas. With a total of five lamps, the Model E will give three hours protection in an area of 25,000 square feet or more.

The Model E is designed as emergency lighting-unit equipment for permanent connection to 115-volt, 60-cycle power. Request NP1618.

•

TEFLON COATING FOR WIRE AND CABLE — "Teflon" FEP fluorocarbon resin can now be purchased as a dispersion or as formulated spray finishes according to the Du Pont Co.

The dispersion, which is coded "Teflon" TE-9500 FEP, can be used as a class H impregnant and surface coating for wire and cable, component insulation, and in electrical and chemical applications.

TE-9500 is said to provide low permeability coatings, heat sealability, high dielectric strength in thin films and may be fused at lower temperatures than dispersions of the older "Teflon" TFE resins. In addition, TE-9500 is reported to offer excellent electrical properties, chemical resistance, and low weight loss at service temperatures.

Surface coatings of FEP dispersion, or impregnated fabrics or yarns containing FEP dispersion, can be sealed together, or to wire insulation, films, or massive shapes made from FEP or TFE fluorocarbon resins.

TE-9500 is a water-based dispersion containing 6½ pounds of finely divided FEP fluorocarbon resin solids per

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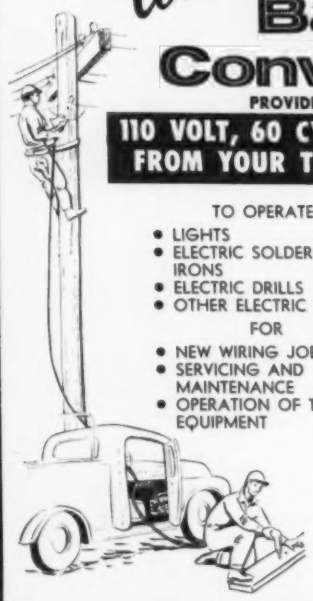

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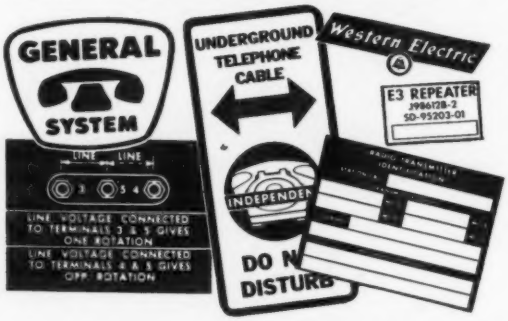
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gallon. It is being test marketed by the polychemicals department of Du Pont.

"Teflon" FEP fluorocarbon resin spray finishes, which offer corrosion protection in surface coatings, are also now available on a trial marketing basis from the fabrics and finishes department of Du Pont. These finishes are codes 851-454 enamel green and 852-401 clear.

Adherent, low permeability coatings of the "Teflon" FEP finishes may be fused, the company says, at temperatures of 575 to 625 degrees Fahrenheit, a distinct advantage over the older TFE spray finishes when coating certain relatively soft aluminum and copper alloys. Request NP1619.

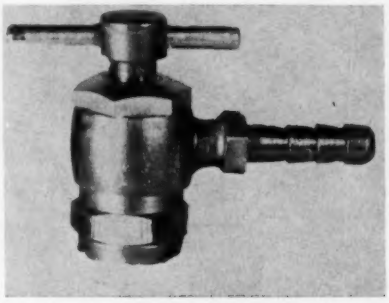
•

PRESSURE TESTING CHUCK — S & G Mfg. Corp. has announced the availability of a new design pressure testing chuck for use with pressure gauges, air flow indicators, or any testing apparatus which requires a pressure-tight connection for testing. Guaranteed leak-proof, it is listed as Part No. 8272.

The pressure testing chuck features a swivel nut to screw on the pressure testing valve, together with a 3/16 inch hose connector.

In using this item, the tee handle is unscrewed out and up before attaching to the valve stem. The hose connects with the gauge on the test unit.

In testing, S & G states that the tee handle is screwed down and the valve



core will be depressed thus letting air out of the cable and into the air hose for testing. This pressure testing chuck is made of metal. Request NP1620.

Pass Emergency Party Line Use Bill in Colorado

Colorado Governor McNichols has signed into law a bill to make it a crime to refuse to give up a party telephone line for an emergency call (TELEPHONY, Jan. 21).

The measure requires that a caller using a party line must surrender it when another person requests the line for an emergency call.

Refusal to surrender the line is a misdemeanor punishable by up to 90 days in jail and a fine of $1,000.

Also fixed by the new law are penalties for persons who force others off a party line by falsely claiming that they are making an emergency call. A violation of this section of the law could mean up to 10 days in jail and a fine of $100.

The law also requires that the penalties be printed in every telephone directory.

Discourage U.S.-Cuba Calls

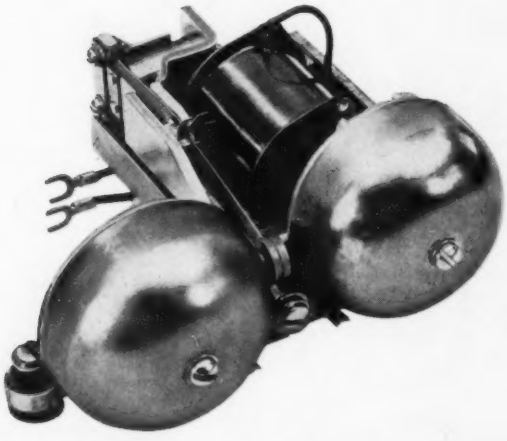
Although telephone service between the United States and Cuba is still in operation, most Cubans would rather not receive a U. S. call. According to an Apr. 22 report, Cubans receiving calls from the U. S. were being arrested by Castro police.

London-Tahiti Service

The British General Post Office has announced that telephone service is now available between London and Tahiti. Calls will go by cable from London to Paris and from there by radio to Papeete, Tahiti.

USI Straight Line RINGERS

Recognized Excellence in Ringers



Versatility: The USI Straight Line Ringer is designed to fit any telephone which uses a WEC4A Ringer. All basic parts are interchangeable with the famous USI Multi-Frequency Ringer.

Sensitivity: High impedance with corresponding low power requirements means a reduction of interference in adjacent circuits and low attenuation in the talking circuit. USI Ringers are the industry's basis for comparison.

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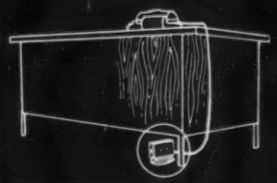

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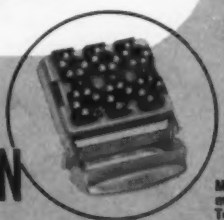

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Comes in four plated finishes: Chrome—satin or bright, and Brass—satin or bright.

All necessary fittings will be supplied to adapt Floor-Con to your particular duct system or floor installation—please specify the type or make in use.

MODEL 102 shown with standard telephone equipment, accommodates up to 6 No. 44-A Connecting Terminals (3 on each side).

MODEL 104 accommodates up to 8 No. 44-A Connecting Terminals (4 on each side).

Or, the back of either model can be used to install external ringers, buzzers or auxiliary equipment.

For catalog information and prices, write:

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IN THE NATION'S CAPITAL

Continued from page 19

$10,000 or a year's imprisonment, or both, for violating proposed bans against:

A regular government employe accepting outside pay for any transaction involving the government, or taking part in any federal business in which he has a financial stake without permission from his agency head.

Ever "switching sides" from the government to a private party in a case upon which an official has worked, thus pinpointing and making permanent what is now a vague two-year prohibition.

While calling for this and other congressional action, Kennedy said he would issue orders and memoranda of his own which would:

(1) Forbid presidential appointees from receiving pay "for any lecture, article, public appearance, etc., devoted to the work of the department or based on official information not yet a matter of common knowledge."

(2) Apply "government-wide standards to the continuance of property holdings by appointees to the executive branch," following through on the Senate Armed Services Committee's demands that Pentagon nominees sell stock they hold in firms with defense contracts.

(3) Forbid gifts to government workers if they have "reason to believe" their official positions prompted the presents, or if the donor's "private interests are likely to be affected by actions of the employe or his agency."

(4) Prohibit government employes "from using for private gain official information which is not available to the public," thus preventing such actions as stock speculations through possession of inside knowledge.

(5) Bar government employes from using their positions for "the subtler forms of extortion" such as inducing economic gain from a person whose interests may be affected by the worker's agency.

(6) Bar any government employe from doing outside work which is "incompatible" with his federal employment, with each department and agency setting its own rules in this regard.

A New Urban Secretary

Something comparatively new under the sun has bobbed up on the Washington horizon and it may some day reach the point of considerable impact on the telephone business. That is President Kennedy's recent request to Congress for the creation of a new cabinet office. It would be the Department of Urban Affairs and Housing and it is supposed to help the American cities meet their numerous and growing problems described by the White House as in a "state of appalling deterioration."

The President told Congress that the new department's secretary would "be in a position to present the nation's

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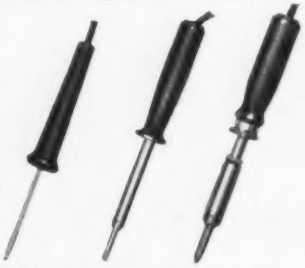
Our 16-page illustrated catalog contains full information on our complete line of electric soldering irons and accessories — including their applications and care. Available through leading telephone or electronics jobbers — nationwide — or request directly from us.



No. T-12 3/32" TIP 12 Watts | No. 3125 ¼" TIP 60 Watts | No. 3138 ⅜" TIP 100 Watts

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housing and metropolitan development needs to the cabinet" and "provide the necessary leadership in coordinating the many federal programs in the fields." The new department would take over the five existing agencies now within the Housing and Home Finance Agency, and would embark upon "comprehensive studies" of ways to solve urban development problems, including transportation.

The big city mayors who provided much of the initial push behind the legislation and won Kennedy's endorsement for it during the campaign last year, have hoped one of their number would be chosen. But wide publicity has been given to an assumption that the President would name Robert C. Weaver, the New York Negro economist whose nomination as Housing Administrator met some resistance from southern conservatives in the Senate.

Apart from this side issue involving racial overtones, there is an important potential here which should be closely watched by the public utility industries. That is the very excellent possibility that such a new government department, once established, would concern itself with representing consumer interests generally and utility rate cases particularly. Nobody has suggested this yet, and your correspondent is not trying to give anybody in the government ideas on the subject. But the fact is, the people in government are way ahead of publicity on this.

Mention already has been made in this department of the likelihood that President Kennedy may soon name a special White House representative of so-called "consumer interests." In fact, the name of a lady politician already has been widely rumored for this post. The General Services Administration has already incurred some displeasure among the state regulatory commissions by its zeal in taking part in utility rate cases at the state level far more extensively than Uncle Sam's interest as a utility consumer would warrant. If the new Secretary of Urban Affairs (whatever his color might be) were set up in business to look after the consumer interests of city dwellers, we can be sure that there would be some new faces showing up around the regulatory stamping grounds in the state capitals, as well as in Washington.

The traditional pattern of the American government in the past has been that the cities are political subdivisions of the states and should look to the state governments for guidance, assistance, and advice along with legislation. But the state trend towards federal assistance has tended to by-pass the

state government and make the big city mayors travel to Washington just about as often as they travel to the state capitals. The fact that the big city mayors also head up political machines which have considerable stake in national politics tends to emphasize this trend.

Just the same, President Kennedy will have his work cut out for him getting such legislation at this session of Congress. Some Washington lawyers seem to think that, if he really wanted to set up a new Cabinet office to look after the American cities, he could do it without special legislation under the broad authority in the Reorganization Act passed by Congress earlier this month. But the President apparently wanted to have Congress show its own support for this new idea of setting up a cabinet secretary to look after the interests of the city dwellers.

Over in the Senate, Chairman John L. McClellan (D., Ark.), whose Senate Government Operations Committee did introduce such a bill, did not think much of the idea. Senator McClellan did not sponsor the bill which was introduced. It was sponsored by Senator Clark (D., Pa), who used to be mayor of Philadelphia (surprise?). Over in the House, Senator McClellan's opposite number is Representative Fascell (D., Fla.). He has agreed to introduce a similar measure, but there are rumblings of resistance throughout the committee.

The consumer interest bill (S. 1688) would establish another new federal cabinet office — a Department of Consumers. It is sponsored by 20 senators organized by Senator Kefauver (D., Tenn.), who introduced a similar bill in the last Congress. Kefauver has referred to President Kennedy's campaign promise to establish government machinery to protect consumer interests. Press reports also have it that the President is considering appointing a special White House assistant to represent consumer interests before regulatory agencies. A lady politician, Mrs. Persia Campbell, has been mentioned for this post.

Such a department, Senator Kefauver explained, "will have the responsibility of presenting the consumer viewpoint when economic policies are being developed at the highest levels of government." Specifically, the bill itself states that the department would "represent the economic interests of consumers of the United States in proceedings before courts and regulatory agencies of the United States."

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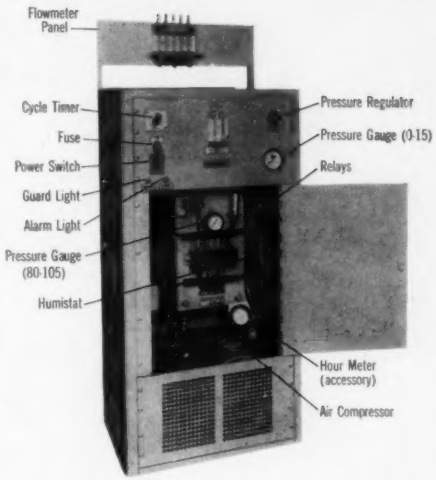

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- **Operating voltage 115/220 volts, 1 phase, 60 cycle—output 700 standard cubic feet per day maximum—dewpoint –70°F.**

For complete information on the MODEL RC, write for our Bulletin No. RC-1-61

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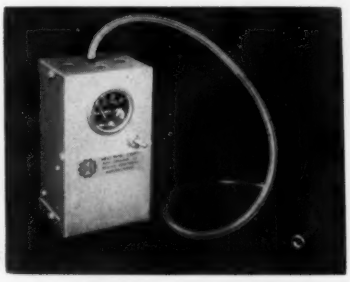

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Light weight for easy installation.

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Tough flame and abrasion resistant PVC sheath.

Rip cord to facilitate stripping at termination.

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JEWETT CITY, CONN.

Name Speakers for USITA Engineering Conference

Three outstanding speakers have been scheduled to address the USITA Telephone Engineering Conference which will begin June 25 at Michigan State University.

They are: Frederick L. Kahn, director of telephone switching system development, Automatic Electric Laboratories, Inc.; R. R. Dobbin, chief engineer, Telecommunication Division of General Dynamics/Electronics; and J. H. Felker, assistant chief engineer, American Telephone & Telegraph Co.

On June 28, Mr. Kahn will address the group on toll ticketing equipment, automatic number identification and all-number calling.

On July 5, Mr. Dobbin will deliver an address on the status of the development of electronic switching equipment and its use in the telephone industry on a commercial basis.

On July 12, Mr. Felker will give a talk on things to come and a report on devices currently being developed in the Bell Telephone Laboratories.

To-date, more than 50 applications have been received for the 1961 engineering conference. Attendance will be limited to a total of 60 participants.

Rockefeller Bill Bars N. Y. Doctors from Directory Ads

Governor Rockefeller of New York, it was reported on Apr. 20, signed a bill barring physicians from advertising on television or in regular or classified telephone directories.

Under the provisions of this law, plastic surgeons will no longer be able to proclaim their particular skills, as formerly, in the New York Telephone Co.'s Manhattan Classified Directory.

However, doctors, osteopaths and physiotherapists will be permitted to retain simple listings under headings noting their specialties. The bill does not include within its prohibitions non-profit insurance plans; but they also, will be barred from using what were termed "flamboyant, or glaring, or flickering signs."

ITT Plans Purchase of Surprenant Mfg. Co.

International Telephone & Telegraph Co. on Apr. 12 announced it has agreed to acquire Suprenant Mfg. Co. of Clinton, Mass., makers of plastic insulated wire and cable products used in the missile, aircraft, space and electronic industries.

Sales of Surprenant are estimated at 17 million dollars for the current fiscal year.

installation time: less than 2 hours!

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"Installed in 1 hour and 42 minutes" . . . this is typical of installation reports regarding the new AChieverfone mobile radiotelephone by AC! AChieverfone reduces installation time because it has only two simply mounted units . . . the receiver-transmitter (complete with Selective Signaling decoder and power supply) and control head. These two units can be installed and connected in any car, truck or van with a single factory finished plug-in, control-power cable. In fact, you can install three AChieverfones in the same time it used to take to install *just one* mobile phone of another make. Ease of installation is just one reason why AChieverfone is the best common carrier system available today. It's reliable, low in cost and designed specifically for telephone company use. Consider AChieverfone! Call or write AC today.

SPECIFICATIONS—FCC Type Accepted

Transmitter: 144-174 Mc, 2-Channel (max.)
4 channel (max.) model available
RF output: 22.5 watts into 52 ohm load
Wide Band (60 kc) or Narrow Band (30 kc) models available. Bands quickly converted to Narrow or Wide by substituting IF filter).
Frequency Stability; within 0.0005%
Selective Signaling; 51,000 five-digit (compatible 2-tone sequential) codes available
Size: Receiver-Transmitter, 21⅛" x 8⅜" x 6¼"
Weight: 37.25 pounds, including receiver-transmitter, control head and interconnecting cable.

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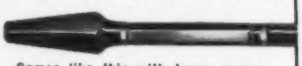
New Irwin Pole-Bor Bits save time . . . money

Now get easier, faster, non-stop boring action in telephone and power poles. Irwin Pole-Bor bits give continuous chip flow—even in creosoted wood. Special Irwin cutting head, twist angle, and smooth-polished hollows eliminate clogging and binding. Side lip smooths hole for easier insertion of bolts and pins. Heat tempering full length gives extra strength, more safety for the man on the pole.

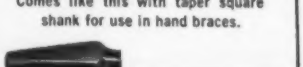
3 Lengths — 12 Sizes

New Irwin Pole-Bor bits come in 12″, 18″ and 24″ lengths, with 8″, 12″ and 18″ twists. Sizes range from $^{6}/_{16}$″ to $^{17}/_{16}$″. Use these new Irwin bits for just about any job — whether boring crossarms, small, medium or extra large poles, heavy timbers. And remember: Irwin's patented Adapter Shank fits both hand braces and electric drills. Save time and money. Use fewer bits on the job. Get Irwin Pole-Bor non-stop boring action and extra safety, too. Order from your Irwin distributor today. The Irwin Auger Bit Company, Wilmington, Ohio.

Irwin Adapter Shank fits both hand braces and electric drills



Comes like this with taper square shank for use in hand braces.



Cut off taper square shank. Use in both hand braces and electric drills. No wobble, no run-out.

IRWIN Pole-Bor Bits

Helpful Literature

TABLES AND FORMULAE BOOKLET—A 32-page booklet, "Tables and Formulae" has been prepared by Automatic Electric Co. This booklet, the fourth of a series, shares a common goal with its predecessors "Relay Terms," "Basic Circuits" (telephony), and "Conversion Factors" — to save time by providing engineering information in a handy form. A total of over 270,000 copies of these three booklets has been distributed by Automatic Electric.

The new booklet, "Tables and Formulae," contains tables of weights and measures, math symbols and constants, the Greek alphabet, temperature conversions, binary numbers, powers of numbers, electrical formulae, the fundamentals of Boolean algebra, and other information useful to the scientist and engineer. Request HL659.

•

POLAR RELAY CATALOG—Also issued by AE is a catalog on their series PTW polar relays. The series PTW relay is a small, two-position relay that is claimed to virtually guarantee positive on-off switching of a circuit billions of times without readjustment. The series PTW relay has a life expectancy of 4 to 5 billion operations without readjustment or maintenance, AE says.

Designed for high-speed response to polarized impulses, it is used, the catalog reports, in telegraph and digital data transmission circuits, as well as teleprinter and other industrial and military applications. The series PTW relay offers positive circuit transfer, extreme sensitivity and small size.

The revised catalog includes the type 204 polar relay which is interchangeable with other relays having standard octal plug mounting. It also shows the type 202 with 11-banana-terminal mounting and the type 203 with 8-pin-type terminal mounting.

The catalog, in addition, gives information on mechanical design, magnetic circuit, coil windings, electrical characteristics and physical dimensions, as well as other technical information. Request HL660.

•

HIGH-SPEED RELAY BULLETIN—Automatic Electric also has issued a bulletin on its new class V mercury-wetted-contact relay. This, the brochure states, is a high-speed relay (operate time approx. 3 milliseconds) for use in computers, data-processing and control equipment. A hermetically sealed glass capsule encloses the contact assembly and a small pool of mercury, in a pressurized hydrogen atmosphere. A film of mercury wets the contacts at all times, renewing the contacting surface with each operation. Fresh mercury is supplied to the contacts by capillary action.

This basic design, AE reports, results in a relay with a life of over one billion operations, absolutely no contact bounce, no contact wear, contact reliability in the range of micro-amperes to 5 amperes, low and constant contact resistance, high-speed operation, and small size.

The bulletin says the mercury-wetted-contact relay is enclosed in a steel cover with the interior wax-potted. It is in-

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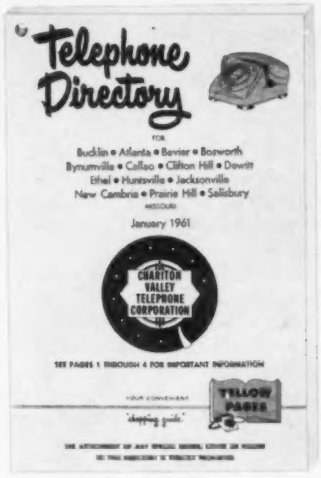
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2171	60 Cycles to 4 Kilocycles	30 Cycle or 50 Cycle Filter	−68 to +32dbm	± .5db −80 to +32dbm 300 Cycles to 4 Kilocycles	**30 CYCLE FILTER** 6db— 35 Cycles 60db—250 Cycles
2174A	300 Cycles to 400 Kilocycles	50 Cycle or 100 Cycle Filter*	−68 to +32dbm	± .5db −80 to +32dbm 300 to 400 Kilocycles	**50 CYCLE FILTER**** 6db— 60 Cycles 60db—450 Cycles
SPURIOUS RESPONSE: Below 60db LOW INTERMODULATION: Below 60db POWER REQUIREMENTS: 115 V. A.C.—50/60 Cycles. WEIGHT: 28 lbs.					**100 CYCLE FILTER** (STANDARD) 6db—140 Cycles 60db—900 Cycles

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This instrument utilizes the heterodyne principle with balanced modulation and highly selective crystal filters which achieve the high resolution needed for accurate amplitude measurements of Carrier and Microwave Sub Carrier channels. Direct reading in DBM for 135 and 600 ohm circuits or bridging. Offers fast accurate amplitude measurements throughout the frequency spectrum of 300 cycles to 400 kc. PRICE: $795 F.O.B. RAYTOWN, MISSOURI.

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stalled by means of its standard octal plug.

The bulletin gives information on mechanical and electrical characteristics, and physical dimensions, as well as a nomograph for determining the required contact protection, and other technical data. Request HL661.

•

LOADING COIL BULLETIN—Automatic Electric reports that it is making available a bulletin on its newly developed type 60 loading coils.

The type 60 loading coils are offered as individual units, in multiple-coil potted assemblies, and in steel or lead cases.

Individual coils and multiple-coil assemblies are designed for cable splice, terminal or housing mountings. U-shaped clips—bolted to the splice case frame—are described in the brochure as providing easy snap-on mounting of the coil assemblies. The coil assembly can be rotated to bring the leads directly in front of the installer. Color-coded leads are distributed along the top of the coil assembly—not the ends—to provide position coding.

Individual coils may be bolted together and then mounted in a U-clip like the coil assemblies.

Individual coils or potted assemblies may also be installed in pole-mounted splice cases, AE says, by using a bracket.

Multiple-coil assemblies are to be manufactured in 6-, 12-, 18-, and 25-coil units.

Lead and steel cases, to be supplied with plastic cable stubs only, will be available with 25, 50, 75, 100, 125, and 150 coils. The plastic cable stubs will be 10 feet long.

The type 60 is reported to be a high-voltage loading coil—at least 10 kv's dc between windings—for use with plastic cable. All type 60 coils are designed, the booklet states, to meet the requirements of REA Specification PE-25 on 88 mh voice-frequency loading coils.

The bulletin gives information on physical and electrical characteristics, applications, and ordering data.—Request HL662.

•

SOLID STATE MULTIPLEXING SYSTEM—A quick-reference catalog sheet listing specifications of the B910 solid state multiplexing system has been issued by Lynch Communication Systems Inc. The system is described as fully transistorized and also expandable to cable and wire-line operation on a carrier frequency basis to complete a communication system.

Lynch states that an entirely new filter design was employed for the B910 solid state multiplexing system, which allows the basic 12-channel system to be translated directly to the 60 to 108-kc spectrum in one modulation step. This makes possible a savings in the cost of intermediate group equipment, extra wiring, assembly and testing.

In addition, the way of deriving the first supergroup (60 to 300 kc) makes it possible to place 120 channels on the microwave baseband without the use of supergroup equipment, Lynch explains. No active equipment (except power supply) then affects more than 12 channels.

The individual channels (1 to 600, or more) occupy a four kc segment, utilize single-sideband suppressed carrier transmission for maximum utilization of the microwave baseband; and are individually stackable to a maximum of 12 channels. Beyond the basic 12 channel group, the system may be expanded progressively by group modulation methods to 600 or more channels. Request HL663.

•

MICROWAVE TOWER INSPECTION-MAINTENANCE CHECK LIST—A microwave tower inspection and maintenance check list is being offered by the Tower Construction Co. This check list is a pocket-size booklet planned for the use of those involved in inspection and maintenance of microwave towers. It emphasizes what should be checked, and the frequency with which inspection should be made on all parts of the equipment; points out what to look for; how to detect; and how to repair, or replace, that which inspection shows needs correction.

A routine Tower maintenance program is also recommended and outlined in the contents.

Prepared by Tower's field service department, the check list is available in either English or Spanish. Request HL664.

•

MASONRY-ANCHORING — Selecting the right masonry anchor and anchoring method can substantially reduce the cost of effectively installing a wide range of fixtures, according to "Install It for Less," a new eight-page booklet published by The Rawlplug Co., Inc.

This "guide to masonry anchors and anchoring methods for all-around economy" explains the technical factors in selecting the anchors for each job. Two tables summarize the pertinent information on principal kinds of masonry and anchors, to simplify determining sizes as well as types of anchors.

Another feature of the booklet analyzes the total cost of masonry anchoring according to anchors, drills, and labor. The user is shown, Rawlplug says,

how to compare anchors and methods for lowest installed cost. Request HL665.

•

NAIL-ANCHOR — How to save time fastening fixtures to all kinds of masonry with one-piece nail-anchors is reported to be explained in another folder from the Rawlplug Co.

The "Nailin" anchor, described in the folder, is a single unit. Photographs and drawings help to explain the installation instructions.

Available in both aluminum and steel, anchors some in sizes from 3/16 x ⅞ inch to ¼ x 1½ inches. Installation requires a drill and hammer and a very small hole in the masonry, which can be drilled right through the fixture's mounting hole, Rawlplug says. Request HL666.

•

INSULATION TESTERS—A new bulletin illustrating and describing the Megger® insulation testers—the Meg® type, has been issued by the James G. Biddle Co.

Instruments shown are in the 500 and 1,000-volt class, described as having extended sensitivities up to 10,000 megohms in the 1,000-volt instruments.

The company announces that hand-operated, rectifier-operated, dual-operated, and two-voltage instruments are now available. Features such as a four-position switch with megohm scale, with division by one and by ten; an ohm scale; and capacitance discharge are incorporated, Biddle states. Request HL667.

•

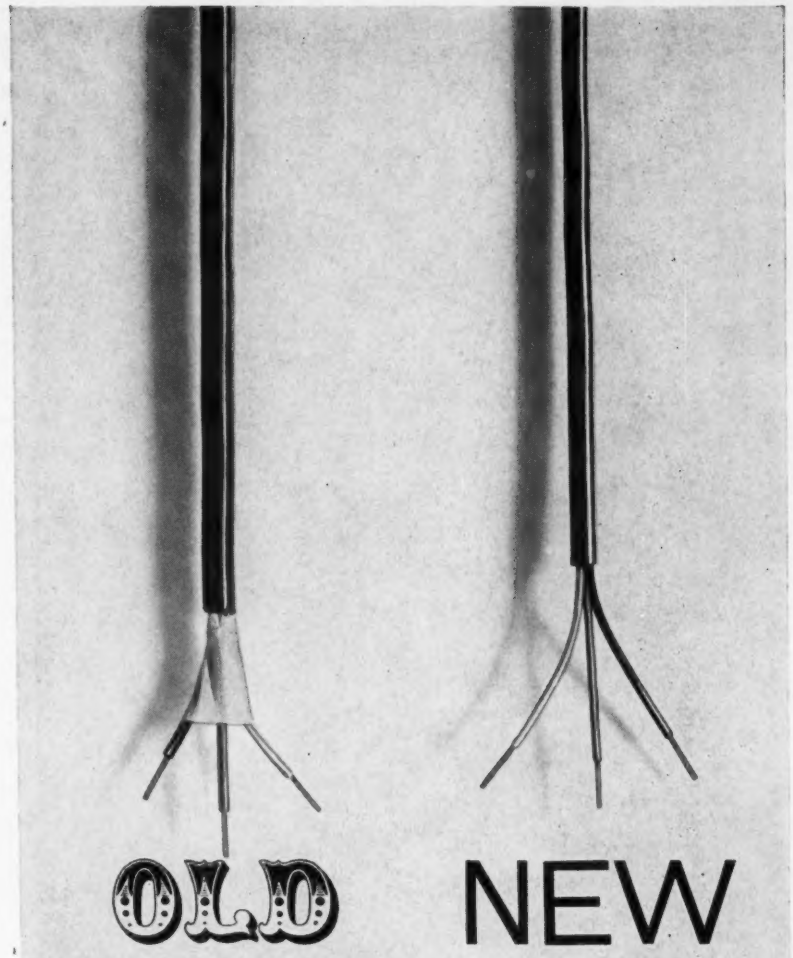
INDUSTRIAL NEWSPAPER—The first edition of their *Industrial News* has been published by The Stanley Works. The aim of this industrial paper, according to the company, is to bring interesting and helpful information about the company's products and services to the attention of purchasing agents, production managers and design engineers.

During 1961, three issues are planned; and four issues have been planned for 1962. The company hopes the *Industrial News* will help readers to reduce costs, improve their products, and increase their operational efficiency. Request HL668.

W. G. Arnold Becomes Manufacturers Representative

Walter G. Arnold of Forty-Fort, Kingston, Pa., has announced his resignation as executive vice president of Wyoming Valley Equipment Co., Kingston,—a position he has held for the past 14 years.

Mr. Arnold is now a manufacturers representative for construction and public utilities equipment.



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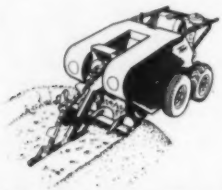

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G. K. Beare Named President, Sylvania Electric Products

Gene K. Beare has been named president of Sylvania Electric Products, Inc., a subsidiary of General Telephone & Electronics Corp. The announcement was made by Donald C. Power, chairman of the board and chief executive officer of the parent company.

Mr. Beare succeeds Robert E. Lewis, who has resigned to become president of Perkins-Elmer Corp., Norwalk, Conn.

With 1960 sales of more than 430 million dollars, Sylvania is a major producer in the fields of electronics, lighting, television and radio, photography and national defense. The company's headquarters are at 730 Third Ave., New York, N. Y.

G. K. BEARE

Mr. Beare previously had been president of General Telephone & Electronics International, Inc., with over-all responsibility for all GT&E manufacturing, marketing, and engineering operations outside the United States. Concurrently, he also served as president of Automatic Electric International, Inc.

A native of Chester, Ill., he was graduated in 1937 from Washington University, St. Louis, Mo., with the degree of bachelor of science in mechanical engineering, and received a master's degree in business administration in 1939 from the Harvard Graduate School of Business Administration.

He then joined Automatic Electric Co., which subsequently became a GT&E subsidiary, as assistant to the president. He was named commercial manager of Automatic Electric's affiliated companies in 1946, and general commercial manager the following year. In 1948 he became production manager, and was elected vice president in charge of production in 1954. He became president of Automatic Electric International in 1958, and president of GT&E International in May, 1960, when that organization was formed.

During World War II, he served in the United States Navy, holding the rank of lieutenant. Mr. Beare is a member of the Armed Forces Communications & Electronics Association, the Pan American Society, and other professional and industry organizations.

Then and Now

"The mark of the man of the world is absence of pretension. He does not make a speech; he takes a low business tone, avoids all brag, is nobody, dresses plainly, promises not all, performs much, speaks in monosyllables, hugs his fact. He calls his employment by its lowest name, and so takes from evil tongues their sharpest weapon."—EMERSON.

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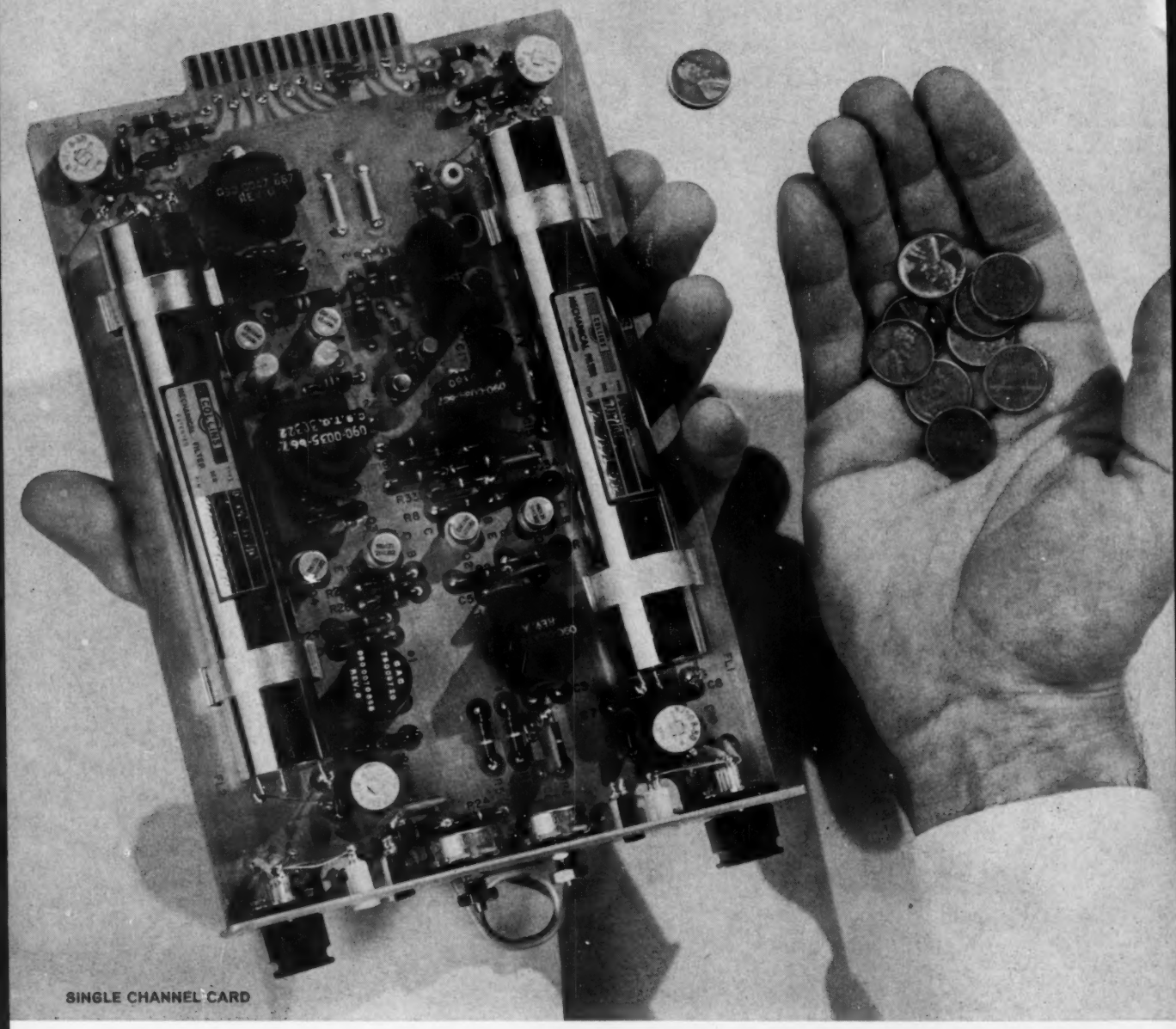

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Dave served with the U. S. Air Force in Japan, then returned to Lexington, Kentucky, for college training. He then went to work in retail sales management, later as an insurance salesman.

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